COLUMBIA UNIVERSITY QUARTERLY

VOL. X — DECEMBER, 1907 — No. 1

THE IDEA OF A COLLEGE AND OF A UNIVERSITY

THE custom of meeting together at the beginning of the year for some discussion of academic or educational questions has of recent years become well established in our University life. Such discussions are intended, I suppose, to lead our thoughts to some of the manifold problems which confront all learners, whether they are just starting on their course, or have reached its middle stretches, or are approaching the horizon which bounds our vision, and thus incidentally to emphasize the unity of our work, no matter at what stage or from what point of view we approach it.

In its broadest sense—and we need constantly to keep this sense in mind—education has to do with all that shapes our lives, and hence only life's experience can bring it to us in all its fulness; in its narrower, or academic sense, it has to do with the transmission and augmentation of the knowledge, culture, and professional training which each generation bequeaths to its successor. It is of course in the domain of academic education that our specific work lies, and I would therefore select a theme for consideration which closely concerns this, without, however, thereby seeking to minimize the vast importance of some more elementary forms of education, which, in a great industrial community like ours, are almost the condition of life. So much has been written of late years about education, and the writers represent so many different points of view, that, in spite of the inexhaustible nature of the subject, there is a real difficulty in saying anything that is not rather hackneyed. On the other hand, the vast range of such discussions, and the danger, which besets us all, of forgetting underlying principles, when our immediate task is concerned with details and with our own special interests, make it worth while now and then to recur to these principles, and to ask ourselves what we are really trying to do in our colleges and universities, what in fine are the ideas and ideals which lie at the basis of these institutions. Only in some such way as this, I conceive, can we reach real unity of endeavor, for most of us quite naturally tend to exaggerate the general intellectual and moral effect of studies through which we ourselves are conscious of having attained growth and inspiration.

There can be little question that at the present time there is a pretty wide-spread feeling of doubt and perplexity in the country with reference to the work of our colleges. We would not, if we could, and we could not, if we would, return to the old definitely prescribed order of work, and yet with the changes that have been going on during the past forty years or so we seem to have lost something—something which perhaps depended upon the very definiteness of the older order. It is, however, just as well to remember in all comparisons of the old college with the college of the present day that the saying " 'Tis distance lends enchantment to the view " always holds good.

It is rather interesting to notice the various quarters in which the present feeling of dissatisfaction manifests itself. We have, of course, always with us the philistine views of those who clamor for what they call immediate practical results, of persons to whom the unseen is temporal and the seen eternal. Such views are only worthy of consideration in that they generally involve the conception of definite and hard work. Then we have President Eliot telling us that the various distractions with which the students now come in contact " have impaired the intellectual quality of college life "; and this opinion finds considerable general corroboration, from an educational point of view, in the admirable report of the Committee on improving instruction in Harvard College, whose members deserve the gratitude of all persons interested in our colleges for the plain manner in which they have laid bare some of the serious defects of study and instruction at Harvard—defects which are very far from being peculiar to that institution. Still more recently come Mr. Adams's attack upon the methods of the present-day college and Mr. Birdseye's elaborate book, in which, even though many will believe that the old college is pictured too exclusively as a professional preparatory school, there is much effective criticism. Further evidence of the present restless state of mind may be seen in the interesting experiments at Princeton; and those of us who have been members of college faculties hardly need to be reminded of the perennial and rather inconclusive debates on college matters, which have enlivened, or possibly on some occasions have lulled to rest, our sensibilities. Certainly it is clear enough that the problem of collegiate education at the present day is very complex and difficult, and that its satisfactory solution can only be slowly worked out in a spirit, on the part of the various persons whose interests are involved, of that large tolerance and of that power to appreciate the ideal in subjects one does not oneself understand, which are the marks of the liberally educated man. Indeed, to work at the solution of such a problem is in itself an educating process. Let me quote a fine passage from Newman's "Idea of a University," in which an ideal atmosphere for such discussion is described: "An assemblage of learned men, zealous for their own sciences, and rivals of each other, are brought, for the sake of intellectual peace, to adjust together the claims and relations of their respective subjects of investigation. They learn to respect, to consult, to aid each other. Thus is created a pure and clear atmosphere of thought, which the student also breathes, though in his own case he only pursues a few sciences out of the multitude. He profits by an intellectual tradition, which is independent of particular teachers, which guides him in his choice of subjects, and duly interprets for him those which he chooses. He apprehends the great outlines of knowledge, the principles on which it rests, the scale of its parts, its lights and its shades, its great points and its little, as he otherwise cannot apprehend them. Hence it is that his education is called 'Liberal.' A habit of mind is formed which lasts through life, of which the attributes are freedom, equitableness, calmness, moderation, and wisdom."

Now the essence of our collegiate problem ultimately depends upon our belief in liberal education, and to me the danger of the present situation seems to lie not so much in such questions as the duration in months and years of the college course, which may well enough be of different length for different persons, nor even in the required subjects of study, important as this matter may be, but rather in a loss of faith in the reality of such a thing as a liberal education. The old colleges, more or less successfully, stood for this ideal, no matter how much their founders may in the beginning have intended some of them to be professional training schools especially for Christian ministers and for lawyers. It should be remembered, too, that the ideal of preparation in those professions largely involved the popular ideal of liberal study. The college of today clearly reflects the enlargement of this ideal, but it also reflects the confused character which our widened range of knowledge and our changed social conditions have brought into it.

It is important then to form some clear notion as to what we mean by the liberal education which it is the function of our colleges to foster. If we say that we want a student to seek for a while after what in the cant phrase of the day is called "culture," before he takes up the definite work of his profession, I think we miss the mark. Culture is really the blossom which grows from the seed of knowledge—the seed which has germinated in the atmosphere of experience and reflection. Sought after as an end in itself it is an empty thing, and when I hear people asking specifically for "cultural courses," I generally suspect that what they truly need is something like shop-work. Surely the idea of liberal education goes much deeper than this. It is a very old idea, and it is profoundly ethical in nature, having to do with what Aristotle has called a ἕξις ψυχῆς, a spiritual condition, which grows out of the direction and quality of our mental activity, and which determines our way of looking at things. The man who has fully grasped it will have soberness and righteousness and wisdom, and, like that great poet of antiquity, he will "see life steadily and see it whole." Youth can, of course, but partially attain to such an ideal, for the liberal habit of mind is confirmed only through life's experience, but the seed from which it grows should be planted by the true collegiate training. Its ideals are not those of a noisy strenuousness, nor of self advertisement or selfish ambition; they are rather those of reasonableness and charity, of the persons whom Plato in his very wise treatise on the "Statesman" describes as the woof in the web of the state, the element which holds in check the too great sharpness, or quickness or hardness of those who constitute its warp, of the persons who cherish the ideals of war. Now to me at least it seems highly desirable that in a splendidly vigorous and aggressive community like our own these quieter ideals should be emphasized in the education of our youth. In the stress they lay upon peace and reflection they tend to bring out the truth which Aristotle enunciated so long ago, that the essential element in the happiness we all seek rests ultimately in the quality of our spiritual activity. What an inestimable treasure it is to anyone, if he may look back upon his college days in such a spirit as Wordsworth in later life looked back upon his earlier visit to the valley of the Wye, as the spot

> In which the burthen of the mystery,
> In which the heavy and the weary weight
> Of all this unintelligible world,
> Is lightened.

But of course the serious practical difficulty comes when we seek to create the atmosphere of liberal learning by the arrangement of programs of study; the interests involved are so infinitely varied in character. It is possible at the present time merely to touch upon some of the general features of the problem, which can at best be worked out only by a process of rather slow evolution. We are indeed in the development of our theories so surrounded by the "uno'erleaped mountains of necessity" that the individual may very possibly never witness, in the flesh at any rate, the realization of his ideals.

In the first place, if liberal education is ethical in its essence, we must expect that the popular idea of its outward form at least is going to show considerable change at different periods of the world's history, for every age tends to create its own moral type. Lecky, in his interesting book, "The map of life," remarks that

" the history of morals is essentially a history of the changes which take place not so much in our conception of what is right and wrong as in the proportionate place and prominence we assign to different virtues and vices." Thus, while the fundamental qualities of our ethics, and consequently the fundamental nature of our conception of liberal training, may undergo no radical change, the emphasis which we tend to lay on different subjects will vary at different times; a fact which may move those whose subjects suffer under a present unpopularity to patience, and may suggest a hope that time will bring another change of emphasis. Let me quote also a further remark of Mr. Lecky's which well describes our present tendencies: " An industrial society has its special vices and failings, but it naturally brings into the boldest relief the moral qualities which industry is most fitted to foster, and on which it most largely depends, and it also gives to the whole tone of moral thinking a utilitarian character. It is not Christianity but Industrialism that has brought into the world that strong sense of the moral value of thrift, steady industry, punctuality in observing engagements, constant forethought with a view to providing for the contingencies of the future, which is now so characteristic of the most civilized nations." No one of course will deny the immense importance of these industrial virtues. They are those which we associate primarily with an education based on the application to industry of the principles of natural science, but they by no means involve all the traits of character which we seek to find in the liberally educated man. They are closely connected with the ideals of those who in the phrase of the day " do things," but they do not tend to produce the type of character which carefully reflects on the ethical and spiritual value of what is done. It is, however, the tendencies of Simonides's τετράγωνος man, the four-square character, which liberal training seeks to foster, and to me it seems that the basis of such training should rest among those studies which direct the thought toward the nature and doings of civilized man. These involve primarily the expression of the human spirit in literature and the fine arts, in philosophy, psychology, and pure mathematics, in history and politics, including, of course, economic and social science. All these subjects have to do with our complex human organism, and all, if taught humanely, should tend to produce the liberal habit of mind.

But I should be a poor apostle of the free spirit of Hellenism, if I were to maintain that solely amid such studies as direct the thought toward the nature and doings of man is to be found the atmsophere of liberal learning. Certainly the conception of such learning today cannot afford to divorce itself from the study of other manifestations of life than man, or of the natural world about us, cannot afford, apart from all the intrinsic value of such study, to neglect what has been happily called the "ethical value of a contact with fact." But the spirit of liberal study of this kind, if a layman may express an opinion on the matter, should not be that of fact alone, but of fact as interpreted into man's experience; and thus in liberal education properly understood there can rightly be no opposition between studies which concern man and those which concern nature.

Thus far I have spoken of the essential quality of liberal training, and I trust that by implication its natural indefiniteness may have been made plain. Just here, indeed, lies its disadvantage and its danger, and those who would seek to turn education at an early stage of youth into fixed and definite professional channels have not been slow to see this disadvantage. The trouble, of course, is that indefiniteness may break down discipline, and so the result may be merely aspiration without attainment. But if this be the Scylla of liberal training, what of the Charybdis of the so-called more practical views? Is many a man not sucked down in the whirlpool of attainment without aspiration? There is, however, no use in denying that the standard of excellence in collegiate work is often not what it should be, and that students are not infrequently taking six or seven courses in the year, and half doing their work, when four, or at most five, are enough. If it be necessary to shorten the period of college life, surely the way *not* to do it is to encourage students to become "point hunters" by stimulating them to rush through about as many courses in three years as they could properly do well in four. It is just here that the Harvard report already spoken of is so illuminating, for it shows very clearly that students do not spend enough time in doing work for themselves, in connection with the courses they elect. Whatever the reason may be for this lack of private work, it is certain that it must undermine the thoroughness, and consequently the discipline of study. Some further words of Cardinal Newman seem applicable to certain features in our present collegiate situation: " I will tell you, Gentlemen," he says, " what has been the practical error of the last twenty years. . . . It has been the error of distracting and enfeebling the mind by an unmeaning profusion of subjects; of implying that a smattering in a dozen branches of study is not shallowness, which it really is, but enlargement, which it is not." Thus the moral effect of work carelessly done is a matter which should be thought of, and we may bear in mind the description of the undesirable hero of the Greek comic epic,

πολλ' ἠπίστατο ἔργα, κακῶς δ'ἠπίστατο πάντα,
" Many the arts he knew, badly he knew them all."

I am fully aware that my discussion of the problem of liberal and collegiate education has advanced scarcely beyond the stage of indicating its difficulties. I have, however, at least tried to show, from the point of view of the teacher, in what temper I believe the problem should be taken up. It is really one of those great human questions which should be answered not too much in the spirit of the age, but rather in "the spirit of the ages."

On the part of the student, as he approaches a crucial period of his life, there should be a sense of responsibility no less keen than that of his teacher, and to him I can only commend the solemn question of the Book of Ecclesiasticus, "If thou hast gathered nothing in thy youth, how canst thou find anything in thine age?"

The problem of the college is, as we have seen, a problem of readjustment; that of the university is for us something comparatively new, and a high and adequate ideal upon which such institutions may be founded can hardly be said to exist yet in the minds of any large number of our people. One fundamental truth has indeed been generally apprehended, namely, that the university must serve the public; but the quality of the service called for is still very largely of an immediately evident and material character. The liberal training I have spoken of is here of high practical importance, for we must look to it as one of the great factors in the enlargement of the popular idea of a university. In a great democracy like ours, there is perhaps little danger that the universities could, even if they would, get out of touch with the nation's life, but the history of some of the European universities, of Oxford, for example, in Wyclif's time, illustrates how unfortunate a thing this is, when it occurs.

There is, then, taking shape before our eyes one of the most interesting pictures in the slow development of humanity—the manifestation in organized and tangible form of some of the highest needs and aspirations of man's nature. The same process has of course been witnessed in older countries, but, although we have inherited much from England and have borrowed much from Germany, the ultimate form which our universities take must of course be in accord with our own conditions. Nor need we expect that their present diversity will disappear in the process of development.

In speaking of the function of our universities and of the ideas which underlie their growth, I would assume that one or two matters are taken for granted. I assume in the first place that there is a general agreement as to the lower limit of university instruction. It is not elementary, and it does not truly and ideally begin till the period of collegiate liberal study is passed, even though in our present stage of advancement it may actually sometimes do so. In such cases the university is forced by circumstances to step outside of its province. Secondly, when we connect certain ideas, such as the idea of professional training or the idea of the advancement of knowledge, with definite units or faculties in the university organization, we should be careful to keep in mind the fact that these ideas are not mutually exclusive. The professional teacher may of course be contributing to the advancement of knowledge, and the discoverer in the realm of knowledge may be guiding others to professional usefulness. Thus the old Greek saying is here true, " It is the men, not the walls, that make the state." I doubt if questions of organization are anything like as vital as they are often thought to be.

Let us now consider certain typical views of the university, which have to a greater or less degree received the sanction of authority. I go back first to the great address of John Stuart Mill delivered at the University of St. Andrews in 1867. "The proper function of an University," he says, "in national education is tolerably well understood. At least there is a general agreement about what an University is not. It is not a place of professional education. Universities are not intended to teach the knowledge required to fit men for some special mode of gaining their livelihood. Their object is not to make skilful lawyers, or physicians, or engineers, but capable and cultivated human beings."

To American ears these words sound strange indeed, for the embryo of our university idea is the old college with the professional school attached to it, and if anything in the world is certain, it is that the idea in this country will continue to involve the notion of professional education. Moreover the existence of the professional school in the university is fully justified by historical tradition. This second element in the general conception was emphasized by the old University of Bologna, nor was it absent even from Oxford in the thirteenth century, in spite of the fact that the older English universities were founded under the more general and speculative influence of the University of Paris. Today we are witnessing in England a return to the professional principle in the newer foundations there, and in the universities of Germany it has of course always found a home.

The remark has often been made that it belongs to the genius of the English people to value character more than intellect and ability more than learning, and Mill's presentation of his conception of university education is permeated with this spirit. His address, however, is so shot through with the qualities of his own splendid intellect and deep learning that it remains a priceless exposition of one of the ideas of a university. Moreover it will not do to forget that the old British view of university training has not prevented many splendid contributions to human knowledge issuing from the universities of Great Britain, even though these institutions, as such, may have made slight profession in this direction. Here we see once more that the ideas which underlie a university are not mutually exclusive. It is plain, however, that Mill's view is an extension of the principles of liberal training which our colleges should foster. Must we then leave out the thought of such an extension in our universities? Indeed I hope not, but the spirit of liberal study of course becomes more or less involved in all high and special work, if the individual worker has really grasped its meaning. Furthermore such extension is provided for in the typical graduate school of American universities, and in our own non-professional university faculties, though it is evident that present conditions tend to make the work in this part of our university life strongly professional. The hard and fast line, however, which is sometimes theoretically drawn between what is professional and what is not often involves a quite illusory distinction. It rests very largely on the necessities of practical organization rather than on any true reality, and hence is subject to many limitations and reservations. Nevertheless, the strictly professional idea entering into the conception of a university adds the immensely valuable element of definiteness to the general notion, and through it the direct utility of the university to society is easily apprehended by anyone. It is, of course, largely a matter of temperament which of the various notions that enter into a university we emphasize, but, if we place such emphasis on one that we exclude others, the very essence of the university, implied in its name, slips away from us. If it seems to us that Mill conceived too exclusive an idea, we may also feel that those who hold the professional schools to be essentially the university are guilty of the same kind of error. Place the essential idea of the professional school as high as you will, make it that of immediate and disinterested service to the life of mankind, and not yet have you found all that may enter into the idea of a university. To fill the full measure of its nature it must also embody a third element, namely the recognition of man's instinctive search for truth, of his eternal desire to enlarge the bounds of knowledge.

This third conception of university life has recently been presented to readers of our own QUARTERLY by Professor Keyser, with the finest appreciation of its spiritual significance. It is indeed the element which should permeate the whole, whether in given instances it be represented by a definite organization or not. It has perhaps been more exclusively emphasized at the Johns Hopkins than at any other American university, and its ideals lie at the basis of the Carnegie Institution. The organization which can embody this idea becomes thereby a university, and without it the university will lack what Plato calls the πτεροῦ δύναμις—the power of the wing—to soar aloft. Among the surroundings of our vigorous industrial life we may sometimes feel impatient that this idea of the search for truth seems to grow slowly and to find a too limited popular sympathy, but that it has made great progress in comparatively few years is pretty evident. We must expect that it will often manifest itself crudely, and that there will be pseudo-research as well as pseudo-culture, but the immortal value of the spirit which seeks for more light cannot be gainsaid. It may for practical purposes be represented by a faculty of pure science or a faculty of philosophy, or perhaps by no faculty at all; the essential thing is that the university should give a home to men who have the great and rare gift of adding to our knowledge. Such men will indeed always be few in number—" many are the thyrsus-bearers, but few the mystæ "—and the public may know little of them, but as the years roll on they shed upon the world the "master light of all our seeing."

It appears then that there are three leading elements which take form in the complete idea of a university—the notion of the moral and intellectual quality which should enter into the individual, the notion of direct utility to human society, and the notion of the increase of knowledge. We may seek at times under the stress of the necessity for practical organization to separate these notions, but they are really so interwoven in the complete idea of a university that no clear boundary lines can be drawn between them. Least of all should the thought of opposition between them enter our minds. "The eye cannot say to the hand, I have no need of thee: nor again the head to the feet I have no need of you."

If a rather special emphasis has been laid on that element in the university which makes for the increase of knowledge, it is because the ideal of this kind of work needs to be fostered in our industrial society, and because, except to man's higher moods, it is shy and illusive. The nobler intellects of mankind have always cherished it, and Plato is filled with its spirit. Perhaps I cannot do better than to close this hasty sketch of our academic problem with his eloquent statement of the source of its power: "And now I will tell you," he says, "the motives of this great anxiety to behold the fields of truth. The suitable pasturage for the noblest portion of the soul is grown on the meadows there, and it is in the nature of the wing, which bears aloft the soul, to be fostered thereby."

J. R. Wheeler

THE RELATIONS OF TECHNICAL EDUCATION TO INDUSTRY

TECHNICAL education is an outgrowth of the industrial era —a development of that wonderful awakening of material activities which marked the latter end of the eighteenth and the progress of the nineteenth century. Up to that time, engineering had been an avocation, rather than a vocation. At most, it had been occupied with static works—pyramids, roads, bridges, aqueducts. The steam engine, it is true, had been discovered, forgotten, and rediscovered time and again—for the world had as yet no need of it. But, whatever may have been the underlying conditions—increasing density of population, complexity of civilization, or epochal change which it belongs to the historian or the psychologist to analyze and determine—the end of the Georgian and the beginning of the Victorian period witnessed the rise and interplay of a remarkable group of mutually reactive inventions which wholly changed the position of industry and of every function related thereto. These centered about the practical application of steam as a motive power, and the introduction of steam-driven machinery. The mine pump, the cotton gin, the spinning jenny and the power loom furnished an application and a demand for the prime mover which Savery, Newcomen, and Watt had provided, and the expanding volume and quickened movement of traffic and travel, springing out of increased production and higher activity, furnished cause for and stimulated the development of the work of Stephenson and Fulton. The new spirit and its tendencies are suggested in the very change which took place in the meaning of the word "engine"; formerly used to denote any curious machine, generally military and destructive, it was increasingly (and is now almost universally) applied to the helpful and beneficent device by which one of "the great sources of power in nature" has been applied "to the use and convenience of man."

The change was revolutionary. It developed new sciences, created new trades, and demanded the service of a large and fast-growing body of men skilled in both. So long as all knowledge in this fresh field was experimental or empirical, the method of training by association and apprenticeship was all-sufficient and was the only one possible. So long, indeed, as the number of disciples is not too great, it is probably the very best school, for the pupil has the closest possible personal association with and receives the utmost possible inspiration from the great masters of his art. But as the army of novices enlarged and as the body of data accumulated and its discerned laws and principles grew in volume and certainty, the need of separate organized study and mental preparation became more and more apparent. A new profession was being first segregated and then specialized, as the extent and diversity of its work increased, and like law and medicine, it demanded its schools. And in response to this demand has been developed, I think, an ideal as revolutionary as that which has found expression in the material civilization of our day—the ideal of an education which is both liberal and practical. The older objective of the well-read scholar has given place to the newer one of the scholarly worker. For the new professional schools, unlike those of law and divinity, undertook to offer an under-graduate, not post-graduate, curriculum. They proposed to displace the classics in favor of the applied sciences, but still to afford cultural education as well as utilitarian instruction. In place of the subjective, analytic type of mind active chiefly in the realm of philosophy and letters, fostered by the older system, they aimed at the development of an objective, synthetic mentality, creative in the sphere of material things. A new order of civilization was demanding a new educated class. Education was being brought back to closer touch with the most vital interests of the spirit of the times.

The movement made its influence felt in the courses in the classics, arts, and letters; but its most emphatic expression was found in the foundation, the growth, and the progressive specialization of the schools of applied science. Here it appeared in its full measure, as a secession which has not yet been accepted with entire toleration nor admitted to complete fellowship by the old-school academicians.

But the inherent tendency of all human systems, whether they be of religion, art, letters, or science, is to crystallize. The history of thought, in every domain, is a recurrent cycle of hardening creeds broken through from time to time by a new outpouring of protesting revolution; and the reformer of yesterday becomes in his turn the formalist of today. Our schools of applied science have been—and are—so splendid in their achievements that criticism is ungrateful, and may seem captious; but if it must be offered, it would seem to be that they, in turn, are growing academic. In spite of their large recognition of the increasing diversity of the scientific callings, and their provision for training therein, there is a certain definite feeling that they are growing over-classical and under-practical. The prevalent belief that the engineering graduate is "too full of theory"—that he must have a considerable supplementary training in minor "practical" positions before he can be trusted to work out results which will be economically valuable—would seem to indicate that his training has failed to include recognition of some important elements in the problems he is supposed to have been taught to solve. For the shortcoming suspected is not simply his comparative inexperience. There are no backstairs to the treasury of knowledge gathered through years of contact with all kinds of undertakings under all kinds of conditions, and nobody expects the technical schools to discover or to build any. The fear is not as to the height or elaboration of the structure of the education they afford, but as to the inclusive scope of its foundations and as to its perspective. The belief, in short, is that the school is again growing out of close parallel with life.

I realize keenly the apparently crushing answer which may be hurled back upon such a suggestion, by exhibits from the catalogue of almost any engineering school. The number and diversity of its courses are almost bewildering; with one great exception (to be referred to later), there is seemingly no special line of work in which the graduate may engage that is not represented by a special scheme of lectures and perhaps of laboratory periods. If this be admitted, then what is the ground of the critics' contention? Broadly and bluntly, it is that the subjects, all too often, are not taught as they must be practiced.

The cause of the defect—if it exist—I think is to be found in the lingering fear of utilitarianism (or, to use frankly the more objectionable word, commercialism) which has always haunted the university. Under its extreme influence, a German professor has been known to thank God that no one could by any possibility ever make any use of *his* subject. In its vestigial forms, it induces a reluctance to recognize and to teach economic limitations as clearly as scientific standards of perfection. It has been said that anything is feasible in engineering if it is within the laws of nature; the question whether it is advisable is determined by the law of dividends. The engineer, whose function it is to carry works of construction or production to practical success, ought to be competent to plot accurately the curve along which the forces behind these two systems of law are in equilibrium; the complaint is that his schools give him too academic a devotion to the one and an inadequate idea of the imperative character of the other. Theoretical standards of construction and theoretical figures of performance are idealized in his philosophy, and the ideals are not sufficiently balanced by a knowledge and appreciation of costs, and of the fact that there is always a point, varying with every case, beyond which further refinement toward the ideal spends more than it saves and so becomes a vanity of perfection—a professional mistake.

It is not for a moment desirable that the vision of the goal set by pure science be obscured, but only that the understanding be increased of the approximations which it is expedient to accept in actual performance, and the conditions by which they are determined. For illustration: the development of the steam engine from Savery's " Miner's friend " to the modern Corliss, or (say) the engines of the Inchmarlo, is a wonderful exhibition of improvement in efficiency in which the data of thermodynamics have been the inspiring and directing influence. Everyone must wish the student of mechanical engineering to possess sufficient knowledge of the science to understand what has been done and to take an intelligent part, if necessary, in continuing it. But the choice of power plant in any given case depends on a careful comparison of the net total of interest on investment, expense of maintenance, depreciation, wages of skilled attendance, and fuel costs. It may easily prove that—in a Pennsylvania coal mine, for example—a plain slide-valve machine, wasteful of coal but cheap and easily run, will be most serviceable to its owners. The average graduate is many times more likely to meet the need of advising as to such an installation than he is to find opportunity for further betterments in steam-engine design; but is he one-fourth as well-informed in the conditions of *commercial* efficiency as he is in thermodynamics?

Or again: the design of a piece of machinery may require a sound, scientific knowledge of mechanics and kinematics, a careful mathematical calculation of stresses and weights, and a high degree of skill at the drawing board. But if cost of construction is important—and it usually is very essential—it requires also attention to economy in the use of the material and especially of the labor involved in manufacture; the selection of stock sizes; the standardization of gears, arbors, bores, tapers, bolts and screws; avoidance of difficult problems in pattern making and moulding, and minimization of labor in machining and assembling of parts. Does the average course impress the student with these common-sense considerations in the handling of materials as strongly as it does with theoretical mechanics or the technique of draftsmanship? Can it possibly do so, until the economics of engineering are given an entity in the curriculum, and made to occupy an arc of the educational horizon as large as that which they will fill in the graduate's discovery of his life work?

More curious, however, than this incomplete recognition of the industrial element in the generally accepted engineering courses is the absence of any adequate attempt to supply systematic training for the newest of the engineering occupations—manufacturing. This is the great exception, already referred to, in the sufficiency of the technical school to follow the specializations of modern applied science. The factory is surely no less characteristic and no less fertile a department of the industrial era than the railroad or the steamship. It employs, probably, a larger number of technical graduates than stationary, locomotive, or marine engineering, and the proportion is increasing. But while institutions so conservative even as the Lords of the Admiralty and the Navy Department have realized that the modern warship is a huge, coherent and interlocking, sea-going and power-driven fighting machine, and that it must be officered by engineers trained in seamanship and navigation, steam engineering and hydraulics, electricity, ordnance, sanitation, discipline, language and international law, our technical faculties seem to have been less responsive in their sphere. The civil engineering college has been very slow to recognize the factory as a vast, coordinated manufacturing machine, demanding a personnel instructed not merely in dynamic engineering, but in executive organization and management, economical works design and construction, transportation and handling appliances, tool-room practice, stores-keeping, wage systems, time records, shop discipline and sanitation, and by no means least, cost analysis and study. Hardly a course has been founded by any technical school which will ground the student thoroughly in this concept—that the manufacturing plant is, or should be, a harmoniously coordinated if intricate device, in which, by skilled organization, the factors of power, machinery, and labor are made to cooperate in the manipulation of material, so as to use the priceless and irreplaceable element of *time* for the maximum of production with the minimum of expenditure or depreciation in any part. It has remained, so far, largely for outsiders to preach this new doctrine of the times. It is not surprising that a new profession should arise outside of the schools; many of us can remember when all the instruction given in electricity was a part of the physics course. But while electrical engineering was promptly adopted and has grown to be one of the noblest children of its *alma mater,* industrial engineering still stands unacknowledged on the doorstep knocking vainly for admission.

It is true that, within their powers, the chairs most closely allied to the subject have tried to incorporate at least some of its elements in their scheme of work and lectures. Columbia has an excellent course covering many of the functions of industrial management. Worcester makes an interesting and praiseworthy exhibition of actual manufacturing conditions in the school shop. Stevens shows a lively appreciation of the business elements in engineering work, and of the necessity that the technical graduate shall perceive them.

The Cincinnati experiment may also be referred to, and there are other partial instances deserving high credit. But the field is too large to be cultivated adequately with the facilities usually afforded. The effort of the mechanical department to compass it today is something like that which an earnest and conscientious professor of physics twenty-five years ago might have shown in trying to keep firm and controlling grasp on the rapid development of electricity.

I have been tempted to expand this point of current criticism upon the technical curriculum because just here the difference is most discernible between the preparation which the school gives and the equipment which the work of the graduate demands. The difference is not so much quantitative as qualitative. For if in theoretical training the courses of instruction lean too strongly toward pure science, in shop training they lean too far toward the handicrafts. The aim (to illustrate by an intentional exaggeration) seems to be to turn out a composite of the natural philosopher and the mechanic—a sort of scientist in overalls. Now it is not manual training, however glorified, that is needed, but a trained observation of, and a capacity to measure, the forces and factors entering into production or construction, under competitive commercial conditions.

Practicing the future mechanical superintendent in chipping and filing, or setting him at elementary work on the planer or the lathe, is about as fruitful of good results as teaching an architect to lay brick or a mining engineer to slog a drill. At best, with the hours available in a four-years' course, he can scarcely acquire the dexterity of a junior apprentice. What he needs to know is *not* how to do filing and fitting, but how to avoid them so far as possible, as enormously wasteful and expensive processes which the genius of modern manufacturing endeavors to the utmost to eliminate.

In so far as any lack of proportion or of balance may exist in the resultant of the present technical courses, it is probably due to a disposition so admirable that one hesitates to call it a defect—that is, the passion for thoroughness actuating every member of the faculty, each in his department. The director of the college work shops is unwilling that the pupil shall begin anywhere above the bottom, and the professor of mathematics is insistent that he shall stop nowhere short of the top. As a result, the student seeking a profession invades a trade at one end and a pure science at the other. As another result, the term is so crowded that lectures, demonstrations, laboratory work, the drafting room, the field, clamor and all but clash in demand for the students' time; and when any new scheme is proposed—engineering economics, for instance—the first exclamation is always, " How can you possibly get it in? Our courses are far too full already!"

With much diffidence, and some trepidation, the suggestion is advanced that (without any change in the full courses laid out for the specializing student) the general educational scheme might be brought nearer to the plane of practical professional work—nearer to the life the graduate must follow—if a more careful scheme of minor courses not *elemental,* but *fundamental,* were worked out, proportioning more usefully the *Nebensachen* to the *Hauptsache* for the candidate for any given degree, and thus affording room for the desirable larger number of these coordinate studies.

Esoteric knowledge is demanded only of the adept. The technical graduate ordinarily does not need to head a rivet with the skill of an expert boilermaker; neither does he need the mathematics of an astronomer. Profound acquaintance with electro-physics probably will never be exacted of him (after his examination for his degree), but he ought to be amply qualified to select proper equipment for a lighting station, or to dissect the representations of an impetuous salesman of dynamos. He might even design an excellent steam plant while he still remained a little vague on the subject of entropy; and he might direct and check the work of draftsmen who have many times his manipulative skill (and command a fraction only of his salary), though his own lettering be far inferior to copper-plate.

Superficial? No; he may be absolutely thorough in everything, so far as he goes; and except in his specialty (in which the technical student must go very far indeed) thoroughness of training as a whole depends quite as much upon amplitude as upon altitude. If the industrial effort works a little too close to the ground, the academic tendency is a little too urgent toward the empyrean; but with closer cooperation their resultant might be the definition of a body of education of ideal proportions. We need, especially in our schools of applied science, a closer fellowship between town and gown. The jealousy of many universities, which discourages the teacher from maintaining close touch with active professional work, is one of the regrettable influences forcing our practical science courses out of parallel with the progress of industry. A more weighty one still, perhaps, is the small opportunity given the alumnus to be heard in university councils and to bring back within university bounds the fresh spirit and suggestion of the constantly changing world without. The result is an inevitable set toward formalism and scholasticism on one side, and toward apathy on the other. Through freer, wider, and more frequent intercourse between faculty and alumni, probably more effectually than in any other way, will the creative forces of the wonderful system of technical education be kept fresh, vigorous, and instantly responsive to the demands of industrial life.

CHARLES BUXTON GOING, '82

A SKETCH OF THE HISTORY OF THE SCHOOL OF MINES

IT is nearly forty-three years since Columbia College first opened her doors to professional students in applied science. In 1863 Thomas Egleston, fresh from the *Ecole des Mines* of Paris, printed and circulated a pamphlet embodying the plan of a proposed school of mines and metallurgy for the City of New York and began to look about for ways and means to establish such a school. He succeeded in interesting the trustees of Columbia College in the enterprise and was appointed in January, 1864, professor of mineralogy and metallurgy. The Rev. Dr. F. A. P. Barnard, who was shortly afterwards appointed president of Columbia, took a great interest in the proposed school and as long as he lived did everything in his power to advance its interests. Early in 1864 Gen. Francis L. Vinton, a fellow student of Professor Egleston, and a graduate both of West Point and the *Ecole des Mines,* was appointed professor of mining engineering, and a few months later Professor C. F. Chandler of Union College was appointed professor of chemistry.

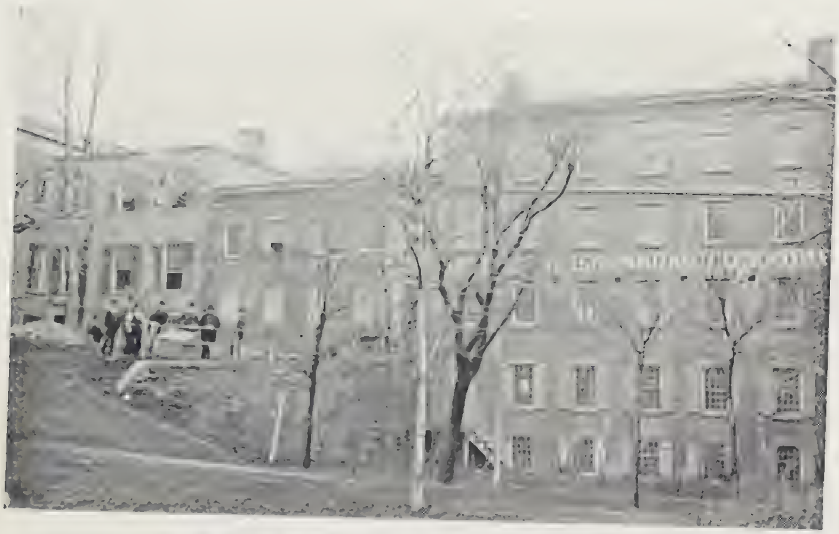
A special committee of the trustees on the school of mines was appointed, and seventeen prominent gentlemen in New York were invited to act with them as associate members in developing the school. These gentlemen and others contributed a small fund, which was used in fitting up a laboratory in the basement of the old College building and a lecture-room and mineral cabinet in a neighboring building, and in providing sufficient apparatus and chemicals to make a beginning. Accommodations were provided for twelve students. Twenty-four students made their appearance on the first day, November 15, 1864, and in all forty-seven students attended during the winter.

One of the first results of the auspicious opening of the school was the offer of several of the academic professors to give instruction in the new school of mines. Charles A. Joy was made professor of general chemistry; William G. Peck, professor of mechanics and mining surveying; John H. Van Amringe, professor of mathematics, and Ogden N. Rood, professor of physics, these being the subjects which they were teaching in the College. Professor Chandler took for his special work analytical and applied chemistry, assaying, and geology, and was made dean of the faculty.

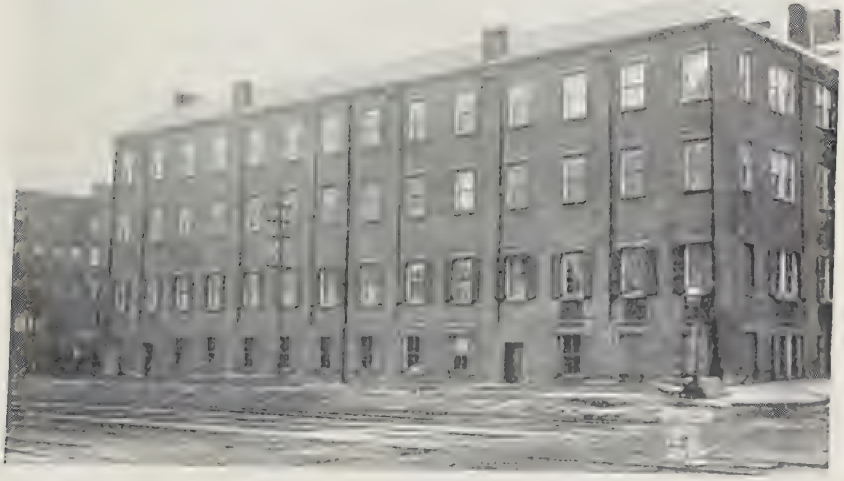
In caring for this large number of students it was necessary to incur considerable expense, as it was not wise to turn away any students for want of laboratory conveniences. The trustees of the College were so encouraged with this opening, that after a few months they decided to borrow six thousand dollars to cover all the expenses for the first year. As the school outgrew its quarters in the first year, it was necessary to secure more room. There happened to be an old four-story and basement building on the College grounds that had been leased to a wall-paper manufacturer, whose lease expired just at this time. The trustees decided to appropriate ten thousand dollars, which they had to borrow, to put this building in order. It was arranged with qualitative, quantitative and assay laboratories, mineral cabinet and drawing academy. Provision was made for seventy-two students. Eighty-nine actually came, among whom there were fourteen holders of the degree of A.B., one who possessed an A.M. degree, and another with a C.E. degree. The school at its opening had presented a graduate course of study. It was intended that it should be a professional school, and that every graduate should be provided with a profession for which he should be thoroughly equipped. It was never intended that the school of mines should merely offer a college course in which the classics should be replaced by some comparatively elementary studies in science.

The school was so successful in its second year, that the trustees of the College borrowed altogether thirty thousand dollars in order that it should not suffer for want of the necessary means of instruction during the year. They further decided that larger quarters must be provided and appropriated an additional thirty thousand dollars to erect a building on the corner of Fourth Avenue and Fiftieth Street, one hundred and twenty feet long and thirty feet wide, with four stories and a basement.

The most important event in the history of the school was the appointment at the beginning of the third year of John S. New-



THE SCHOOL OF MINES BUILDING, 1865



THE SCHOOL OF MINES BUILDING, 1866

SCHEME OF LECTURES

IN THE

SCHOOL OF MINES,

COLUMBIA COLLEGE,

New York.

First Session from November 15, 1864, to May 15, 1865.

FOR FIRST YEAR STUDENTS.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.
10 to 11	*Algebra. Prof. Van Amringe.				
11 to 12		Mathematics. Prof. Van Amringe.	Analytical Chemistry. Prof. Chandler.	Mathematics. Prof. Van Amringe.	Mathematics. Prof. Van Amringe.
12 to 1	‡ Physics. Prof. Rood.	Mechanics. Prof. Rood.	* Geometry. Prof. Van Amringe.	Stochiometry. Prof. Chandler.	‡ Mining Surveying. Prof. Peck.
1 to 2					
2 to 3	Mineralogy. Prof. Egleston.	Mineralogy. Prof. Egleston.		Descriptive Geometry. Prof. Vinton.	Descriptive Geometry. Prof. Vinton.
3 to 4			Inorganic Chemistry. Prof. Joy.		Inorganic Chemistry. Prof. Joy.
FOR SECOND YEAR STUDENTS.					
10 to 11			Geology. Prof. Chandler.	Geology. Prof. Chandler.	† Paleontology.
11 to 12	Metallurgy. Prof. Egleston.	Metallurgy. Prof. Egleston.	Analytical Chemistry. Prof. Chandler.		
12 to 1			‡ Organic Chemistry. Prof. Joy.	Stochiometry. Prof. Chandler.	‡ Organic Chemistry. Prof. Joy.
1 to 2				Mining Engineering. Prof. Vinton.	Mining Engineering. Prof. Vinton.
2 to 3	Mineralogy. Prof. Egleston.	Mineralogy. Prof. Egleston.			
3 to 4	‡ Botany. Prof. Torrey	‡ Botany. Prof. Torrey.			
†FOR THIRD YEAR STUDENTS.					
10 to 11	† Theory of Veins. Prof. Egleston.	† Theory of Veins. Prof. Egleston.			
11 to 12	Metallurgy. Prof. Egleston.	Metallurgy. Prof. Egleston.			
12 to 1					
1 to 2			† Mining Legislation.	Mining Engineering. Prof. Vinton.	Mining Engineering. Prof. Vinton.
2 to 3			† Assaying. Prof. Chandler.		
3 to 4					

Hours not occupied by Lectures are devoted to Laboratory Practice, under Prof. Chandler and Mr. Potter, or Drawing, under Prof. Vinton.

* Temporary † Not given at present. ‡ Commences in February.

SCHOOLS OF MINES, ENGINEERING AND CHEMISTRY

1907—1908

UNIFORM CURRICULUM FOR FIRST CLASS

HOURS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
9—10	Physics 3_1-4.	Physics 3_1. Civil Engineering 2.	Physics 3_1-4.	Physics 3_1. *b* Phys. Ed. A	Physics 3_1-4.	Chemistry 3. Civil Eng. 2
10—11	Mathematics 3-4.	Chemistry 61 Mathematics 2.	Mathematics 3-4.	Chemistry 61 Mathematics 2.	Mathematics 3-4.	Chemistry 61 Chemistry 4.
11—12	Chemistry 3-4.	*a* Phys. Ed A (Gym.) Drafting 4. 103, 301 H, 301 M	Chemistry 3-4.	*a* Phys. Ed. A (Gym.) Drafting 4. 103, 301 H, 301 M	Chemistry 3-4.	Chemistry 61 Drafting 4.
1—2	Drafting 2.	*b* Phys. Ed A (Gym.)				
1—4	Chemistry 61, Lab. Drafting 2	Chemistry 61, Lab. Drafting 2	Chemistry 61, Lab. Drafting 2.	Chemistry 61, Lab. Drafting 2	Chemistry 61, Lab. Drafting 2	

COURSE IN MINING ENGINEERING

SECOND CLASS

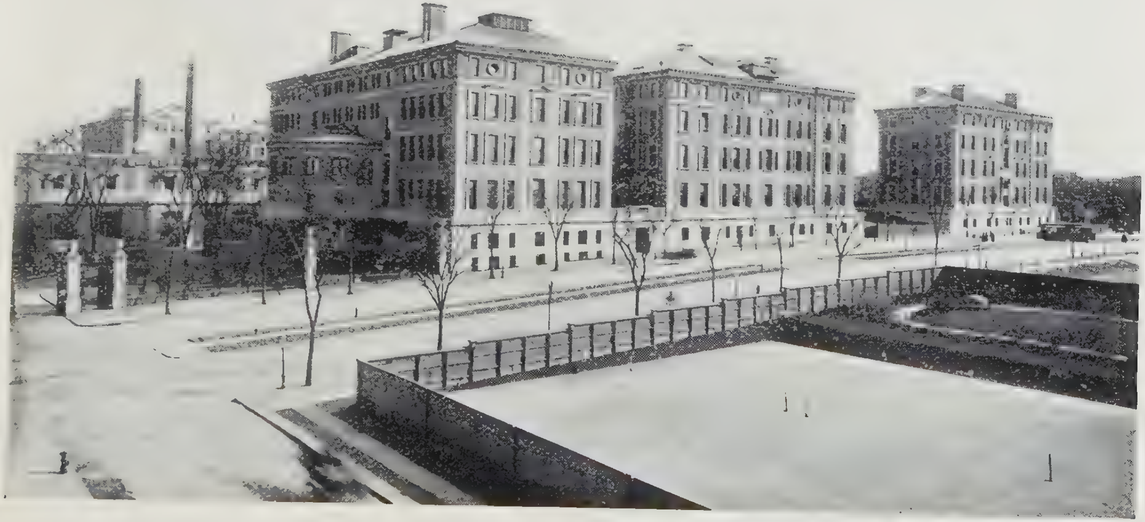
HOURS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
9—10	Chemistry 81-82.	Civil Eng 23. Chemistry 66.	Chemistry 81-82.	Drafting 3. Chemistry 66.	Chemistry 81-82	Civil Eng. 23
10—11	Math. 5-6.	Elec Eng. 1.	Math. 5-6.	Elec Eng. 1. Elec. Eng. 2.	Math. 5-6.	Drafting 3. 4 Chemistry 66.
11—12	Physics 3_2 Mechanics 102.	Geology 5-6 ‖ Mineralogy 1-2.	Physics 3_2. Mechanics 102.	Geology 5-6. ‖ Mineralogy 1-2.	Physics 3_2. Mechanics 102.	Geology 5-6.
1—2	Phys. Ed. B. Gym.				Phys. Ed B. Gym. ‖ Mineralogy 1-2	
1—4		Civil Eng 23 Chemistry 66, Lab.	Drafting 7 Chemistry 66, Lab. ‖* Mineralogy 1-2 Lab.	Drafting 7. Chemistry 66, Lab. ‖* Mineralogy 1-2 Lab.		Physics 43, Lab Chemistry 66, Lab.
2—5	Physics 43, Lab Chemistry 66, Lab	‖* Mineralogy 1-2, Lab.			Drafting 7 Chemistry 66, Lab ‖* Mineralogy 1-2 Lab.	

THIRD CLASS

HOURS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
9—10	Civil Eng. 53 54.	Mining 51. Mining 54	Civil Eng. 53-54.	Mining 51. Mining 54.	Civil Eng 53. Mech Eng 76.	Mining 51. Mining 54.
10—11	Mechanics 101. §§ Mining 52.	Geology 105-106.	Mechanics 101 §§ Mining 52	Geology 105 106.	Mechanics 101. §§ Mining 52.	Geology 105 106.
11—12	Metallurgy 1. Metallurgy 2*a* 2*b*.	Mech Eng 69. Elec Eng 68.	Metallurgy 1. Metallurgy 2*a*-2*b*.	Chemistry 69. Civil Eng 64	Chemistry 69 Mining	Chemistry 69
1—4	Chemistry 69, Lab. Civil Eng. 55, Lab. Mech Eng. 76, Elec. Eng. 72 Lab. Civil Eng 56, Lab.	Chemistry 69, Lab. Civil Eng. 55, Lab. Mech. Eng 76, Lab. Civil Eng. 56, Lab. ¶ Geology 4, Lab. ‡ Mineralogy 6, Lab.	Chemistry 69, Lab. Civil Eng. 55, Lab. Elec. Eng. 72, Lab. Civil Eng. 56, Lab. ¶ Geology 4 Lab. ‡ Mineralogy 6, Lab.	Chemistry 69, Lab. Civil Eng. 55, Lab. Mech Eng. 76, Lab. Civil Eng. 56, Lab. ¶ Geology 4, Lab. ‡ Mineralogy 6, Lab.	Chemistry 69, Lab. Civil Eng 55, Lab. Elec Eng 72. Lab. Civil Eng 56, Lab. ¶ Geology 4, Lab. Mineralogy 6.	Chemistry 69, Lab. Civil Eng. 55, Lab. Civil Eng. 64, Lab.

FOURTH CLASS

HOURS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
9—10	Mining 71-72	Mech Eng. 13. Mech Eng. 14. Geology 201-202	Mining 71-72.	Mech Eng 13. Mech Eng 14 [illegible]	Mining 71-72.	Mining 91 Mining 94.
10—11	Mining 81. § Mining 82 §§ Civil Eng. 78.	Mechanics 7 Mech Eng 24.	Mining 81. § Mining 82. §§ Civil Eng 78.	Mechanics 7. Mech. Eng 24.	Mining 81 § Mining 82 §§ Civil Eng 78	Mining 55 Mining 94.
11—12	Mech Eng 71. Mining 80. Geology 16	Metallurgy 3. Mining 56.	Mech Eng 71. Geology 110.	Metallurgy 3. Mining 56.	Mech Eng 71. Geology 110.	Metallurgy Mining 92.
1—4	Mining ** Mining 82*a*, Lab. † Geology 16, Lab.	Mining 75 ** Mining 82*a*, Lab. Geology	Mining 75 ** Mining 82*a* Lab † Geology 16, Lab.	Mining 75. ** Mining 82*a*, Lab. † Geology 16, Lab.	Mining 75 ** Mining 82*a*, Lab. † Geology 16, Lab	Metallurgy 71-4 Lab.



SCHERMERHORN
FAYERWEATHER
POWER PLANT

HAVEMEYER
(Chemistry and Architecture)

ENGINEERING

MINING

SCHOOLS OF MINES, ENGINEERING AND CHEMISTRY, 1907 berry as professor of geology and paleontology. One hundred and sixteen students were in attendance this year and the entire cost to Columbia College was over seventy thousand dollars, all of which was borrowed for the purpose. Certainly, the trustees of Columbia College did their best to encourage its scientific department, borrowing during the first three years one hundred and six thousand dollars.

The school continued to grow and develop and in 1874 a new building was erected on the site of the old wall-paper factory at a cost of one hundred and fifty thousand dollars.

In 1868 a preparatory class was established, which afterwards became the first year of the school, changing the course from one of three to one of four years. In the beginning the school maintained two regular courses and offered the degrees of engineer of mines and bachelor of philosophy, but in 1868 the courses of study were enlarged so as to include four parallel courses, to which a fifth was added the following year, the system of instruction including five parallel courses of study, namely, civil engineering, mining engineering, metallurgy, geology and natural history, and analytical and applied chemistry.

In 1884 a course in architecture was added, and Professor William R. Ware was placed at its head. After a time the young architects and their instructors began to object to the name School of Mines, and as the title seemed rather narrow and limited for the six parallel courses, a change was made in the title (1896) and the name School of Mines, so dear to the older members of the faculty and the alumni, was changed to Schools of Applied Science, which included a school of mines, offering courses for the degrees of engineer of mines and metallurgical engineer, a school of engineering, offering the degrees of civil engineer, sanitary engineer, electrical engineer, and mechanical engineer, a school of chemistry, offering the degree of bachelor of science, and a school of architecture, offering the degree of bachelor of science. More recently, the school of architecture has been detached from the schools of applied science—or the schools of mines, engineering and chemistry, as they are now designated—and placed under the faculty of fine arts, while in the school of chemistry a parallel course for the degree of chemical engineer has been added.

During the forty-three years which have elapsed since its foundation, the school of mines together with its associated schools has sent out many hundred well-educated engineers, chemists, and architects. They have gone to the four quarters of the globe, and wherever they are found they are certain to occupy a high rank in their profession; no one can estimate how much they have contributed to the development of the natural resources of our country.

To illustrate the growth of the school of mines during these years, there is included in this article a reproduction of the first scheme of lectures for the session of 1864–65 and of the scheme of exercises in the department of mining for the current year.

C. F. Chandler

THE DEPARTMENT OF CIVIL ENGINEERING

THE founding of the department of civil engineering at Columbia University was one of the results of the establishment of the School of Mines in 1864, although the first civil engineering graduates received their degrees only in 1874. The principal motive in establishing the School of Mines was obviously the education of mining engineers, but it soon became clear that the most natural development of such a technical school must embrace the other engineering professions. It was also natural that the first engineering course to be established distinctly of that name should be a course in civil engineering, which historically and fundamentally includes all engineering not of a military character.

As was largely, but not universally, the custom in those early days of the modern engineering profession, the first engineering professorship established was known as the chair of "engineering." Although this term now appears to have a decidedly broad and comprehensive scope, it was practically identical with the courses or professorships of civil engineering as first established in the engineering schools of this country. The first occupant of the chair of engineering in Columbia University was Professor William P. Trowbridge, who was appointed in 1877 and who held that chair until 1892. On his death the professorship of civil engineering was established and the old name abandoned.

It is thus seen that the Columbia course in civil engineering is one of the oldest of civil engineering courses in this country, it being antedated by a few others only. Although the pioneer school of engineering, the Rensselaer Polytechnic Institute at Troy, had been graduating young civil engineers for nearly forty years before this course was established, its course of study as that of an advanced civil engineering school on the broad basis underlying the early civil engineering instruction at Columbia antedated the latter by probably not more than twenty years. At the time, therefore, when civil engineering instruction began in the School of Mines, the profession had scarcely passed out of its infancy in this country.

While railroad building had widely extended, practically all the larger problems of that great field of engineering were then unknown. There were no large bridges, there were no great systems of waterworks, all public works were on a comparatively small scale and as we look at them now they were crudely designed, power plants in the modern sense of the word had scarcely begun to exist, and the developments of locomotives and other motors were in their initial stages only.

On referring to the course of studies prescribed for the early civil engineering students of the School of Mines, the elementary nature of the requirements corresponding to the conditions of the profession at that time is clearly apparent. No such specialization in technical works as now exists was even foreshadowed. The literature of all branches of engineering was narrow and meager, with such a small amount of engineering data based upon professional experience and investigation upon an extended scale as to give scarcely any body of precedents. This condition, which made it imperative for every practitioner to be essentially a pioneer in his work, necessarily gave to the body of instruction in an engineering school a strongly academic character, with but little engineering experience available for testing the analysis of the classroom. Nevertheless, the records of the department of civil engineering at Columbia show a total of two hundred and thirteen graduates from 1874 to 1892, inclusive, when the department of civil engineering was established. Of this total a fair proportion have taken prominent positions in the strictly professional part of this field, as well as in those more or less affiliated callings which in their highest efficiency require the use of engineering knowledge or the exercise of executive capacity or judgment trained largely in connection with some branches of engineering practice.

In 1893 the present head of the department was appointed to take the chair created in the preceding year. At that time the course of study was fundamentally rearranged and developed into the broad and comprehensive curriculum offered since that time. Two points regarded as essential to the proper and efficient development of the department were kept clearly in view: first, the historical and logical view of civil engineering as the main trunk and stem of all engineering not military, carrying with it a thorough and well rounded study in the fundamental elements of the " art of directing the great sources of power in nature to the use and convenience of man "; and secondly, a thorough training in the broad, general principles of all branches of engineering science, with constant reference to the results of engineering experience, rather than series of detailed exercises necessarily more or less discontinuous in special completed works. It has been the controlling belief in the administration of the department that the grounding of engineering students in the basic general principles of the science of their subsequent practice will give them a far better control of the problems arising in their life work than can be acquired in any other way. It has been recognized that the acquisition of the real knowledge of professional practice consists first in a thorough knowledge and control of the general principles underlying all the technical features of their work and then in their applications to the professional practice of the engineer, and that a comprehensive view of the whole field should not be impaired or, worse, rendered impossible by limiting the mental vision to details.

Furthermore, the educational administration of the department has been conducted largely in the belief that the professional education of the engineer should follow and be built upon a prior course of general educational training. In other words, the Columbia course in civil engineering has been developed upon the assumption that the civil engineer should be a well educated professional man, precisely as the most advanced courses in law and medicine at the present time require as a necessary prerequisite a liberal college training. Columbia University has taken no wiser educational step than when it offered to all engineering students a six years' course of study, the first three consisting of a general training in the college with the last three applied to technical educational work in the professional school. It is a matter of great regret that this course has not been so set forth and emphasized as to attract a larger number of students than those who have up to this time taken it.

There have been many attempts made by the leading engineering organizations of the country to place the calling of their members upon a higher professional plane; in other words, to establish certain ethical principles and practices which would give to engineers a higher and better recognition by the public, but such things do not come of legislation. The public on the whole takes professional men at their own valuation. Whenever engineers show their own esteem for professional qualifications gained through a well rounded professional educational training and a correspondingly efficient professional practice, the public will give them corresponding recognition and not before. It has been the aim of the department of civil engineering so to conduct its administration of educational affairs as to give to its graduates such a foundation of efficient educational equipment as will lead to the highest and best planes of subsequent professional work.

The educational work done in the department consists both in a thorough analytical training and in extended practical exercise in those matters which pertain to the profession of civil engineering, including in the last year of the course continuous design of engineering structures with working plans and estimates of cost. This student work has no narrow limits of mere convention, but it covers all classes of structural and public works as well as developments and applications of power by the use of steam, electric, water and air motors. The purely technical parts of the curriculum involve a thorough treatment or analysis of what has been very aptly called the natural philosophy of engineering, connected with constant applications to the actual practice of the civil engineer in its widest meaning.

Further than this, it is the belief of many who are familiar with the engineering affairs of the present time that a civil engineering education has a high value to those who intend to follow callings not of an engineering character but which may be related more or less to manufacturing, to structural matters, or to the development and application of power. There is a wide range of such callings, which is rapidly extending, the efficiency of whose members would be greatly enhanced in all of their active relations if they were equipped with the educational training of civil engineers. This is a phase of application of the work of engineering schools which has not yet received even a small fraction of the attention which its importance to the community demands. It is believed that the curriculum of the department of civil engineering is admirably adapted to serving this purpose, and that many young men who contemplate life pursuits not of a technical character, but to some extent affiliated with engineering affairs, would be greatly benefited in the preparation for their life work by improving the offered facilities of this character.

One of the most important functions of the university at the present time consists in rendering a great variety of service in various ways to the community in which it is placed. The professional schools, especially those of a technical character, offer exceptional opportunities for rendering such service, and this observation is especially true of engineering schools. At the present time, when so many great industrial and manufacturing interests are being developed largely upon the results of technical investigations which can be carried on to the greatest advantage in connection with laboratories required for professional instruction, a legitimate and effective field of work consists in rendering just that kind of service. It is difficult to conceive of more valuable work being rendered by technical laboratories of a professional school or one more consistent with their real purpose than the conduct of investigations of this class. It is the purpose of the department of civil engineering to extend its operations in this field of service as rapidly and as effectively as possible. Its experimental work done in connection with and supplementary to its classroom instruction is precisely in this line and of the same general character, although on a much smaller scale and adapted necessarily to the needs of students. The general equipment of such laboratories, however, is of the same class required for the work of investigation for industrial, manufacturing and other similar interests. All that is essential is a small extension of the laboratory plant needed for educational purposes, and efforts are now being made to secure the requisite equipment for a great physical testing laboratory for the department, which shall offer both the most efficient opportunities for student work and for the needs of those in any part of the country who may require special investigations of this class of any kind for the purpose of any technical, manufacturing, or other industrial interests.

William H. Burr

HISTORY OF THE TESTING LABORATORY

THE history of the Columbia testing laboratory really begins with the year 1874, when the old 50,000 lb. Fairbanks machine was first installed and put into service at the Forty-ninth Street site. At that time the art of testing the strength of materials was new and little known in this country. The government had realized the necessity for more complete information regarding the quality of metal used for cannon and small arms, and in 1854 the ordnance department built a small testing machine from designs by Major A. Wade, and made an elaborate series of tests upon cannon metals. The Civil War emphasized the necessity of more knowledge on this subject, and in 1871 a machine was constructed by the Fairbanks Scale Company at Colt's Armory, Hartford, from designs by Professor Charles B. Richards, now of the Sheffield Scientific School, Yale University. Some previous work had been done in testing building stone for the extension of the Capitol at Washington, and the Riehlé Company were experimenting with their first types of machines in Philadelphia. They had also built a crude machine for Mr. Francis Stevens, of Hoboken, for testing boiler metal.

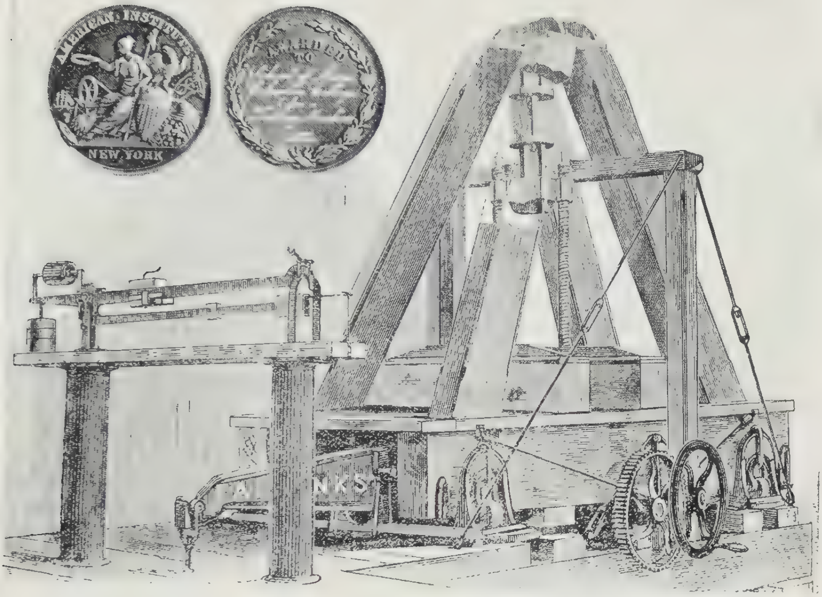
This was practically all that had been accomplished here in this very important art in the year 1873, when the Columbia School of Mines ordered its first testing machine from the Fairbanks Scale Company. It was really a modified track scale with a huge wooden frame and a pair of screws operated by hand by which the loads were applied. The making of a test was a laborious task; the writer has vivid recollections of his first experiences with this old machine. It was bought by Professor Francis L. Vinton, then head of the department of civil and mining engineering, at a cost of one thousand dollars. As far as can be learned, the moving spirits in this first purchase were Professor Vinton and Henry Newton, who, as assistant to Professor John S. Newberry, head of the department of geology, had become somewhat familiar with government testing work, and realized the importance of such investigation. The machine became the property of the School of Mines in 1873, but as there was no place available for installing it, the Fairbanks Company used their influence to have it exhibited at the American Institute Fair at Third Avenue and Sixty-sixth Street, Gracie S. Roberts and William H. Ingersoll, assistants to Professor Vinton, being in charge of the machine at the Fair. It attracted much attention from the engineering profession, as well as from the general public. A silver medal, now in the testing laboratory museum, was awarded the School of Mines for the exhibit.

It is believed that this was the first testing machine purchased by an educational institution in this country. Its early life at the Forty-ninth Street site was a restless one. It was first installed, in 1874, in the third story garret above the office of the drawing department. This place was so hot and inaccessible, that a change of location became necessary. Accordingly, in 1881, when the boiler house was removed from the basement of the Fourth Avenue building to the mushroom-roofed cellar on the campus, Professor F. R. Hutton, then superintendent of the boiler house in connection with his other duties, secured permission to place the machine in the space made vacant by the boilers under Dr. Chandler's lecture-room. It was then equipped to run with power from a small steam-launch engine. The growing school and the need for more room forced it from this place to the dark sub-basement of the old Hamilton Hall on the Madison Avenue side of the block, where it was again operated by hand. The completion of the library building a year or so later released some coal bunkers adjoining the boiler house, and the machine was then established there, forming part of the first mechanical laboratory equipment. In 1888 the roof of the boiler house was raised to provide room for the new course in electrical engineering, and a part of the space thus provided was allotted to a testing laboratory. Professor Hutton now rebuilt this Fairbanks machine, changing the frame from wood to iron, and it was then moved to the new quarters. Through all these vicissitudes the machine had only served for private research and commercial work. A few students used it for thesis investigations, but no regular student instruction had been given in connection with it.

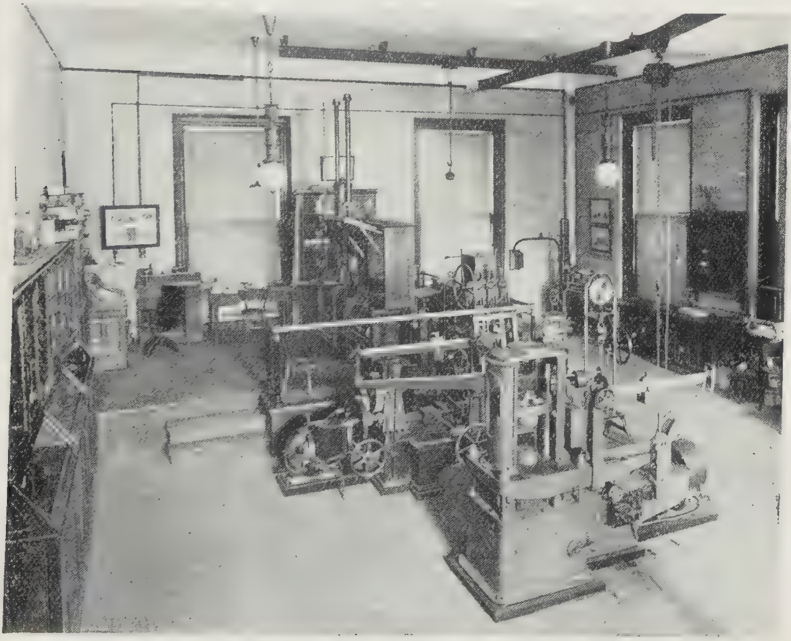
It was during the same academic year (1888–89) that the 150,000 lb. Emery testing machine was purchased. This machine was one of five built by the Yale & Towne Manufacturing Company, of Stamford, Conn., upon the same unique designs used by Albert H. Emery in the construction of the famous 800,000 lb. machine for the U. S. Arsenal at Watertown, Mass., in 1879. They were too expensive for general use, consequently slow of sale. Our machine was offered to Columbia at the low price of six thousand dollars, and Professor Hutton finally succeeded in securing this rare acquisition. He was aided by Professor Trowbridge and President Barnard in arranging for the purchase, on the basis that the Trustees would assume the last two payments of two thousand dollars each, if Professor Hutton could secure the first payment. This he did by personal appeal to the alumni and to friends in the American Society of Mechanical Engineers, the expenditure by the Trustees being the first specific appropriation made for the mechanical laboratory equipment.

The machine was delivered in 1889 and set up in the new testing laboratory above the boiler house, and the writer was appointed by Professor Trowbridge, then head of the engineering department, to take charge and operate it. The ceiling was low and ill adapted to the purpose, and foundations were therefore built up from the cellar and a coop-like structure extended through the ceiling into Professor Crocker's private office in order to accommodate the long straining-screws. It was at this time that the writer was appointed by Professor Trowbridge to operate the Emery machine.

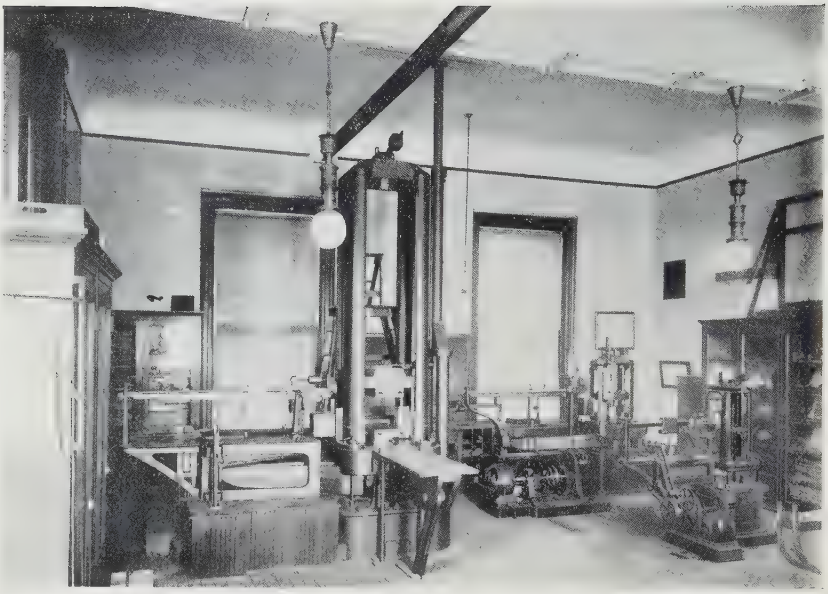
The machine is a marvel of beautiful mechanism and accuracy, and from the very first it became a standard of comparison and court of reference in matters of moment involving the strength of materials. Many important investigations have been conducted upon it, one of the first being an exhaustive research by the City into the cause of the wreck of the Ireland Building. A large number of miniature cast iron columns, footings and foundations were constructed and tested. The results proved conclusively that bad judgment—not wilful neglect—produced that distressing disaster. An elaborate series of tests was also made to determine the best variety



OLD FAIRBANKS MACHINE, AND SILVER MEDAL AWARDED IT IN 1873

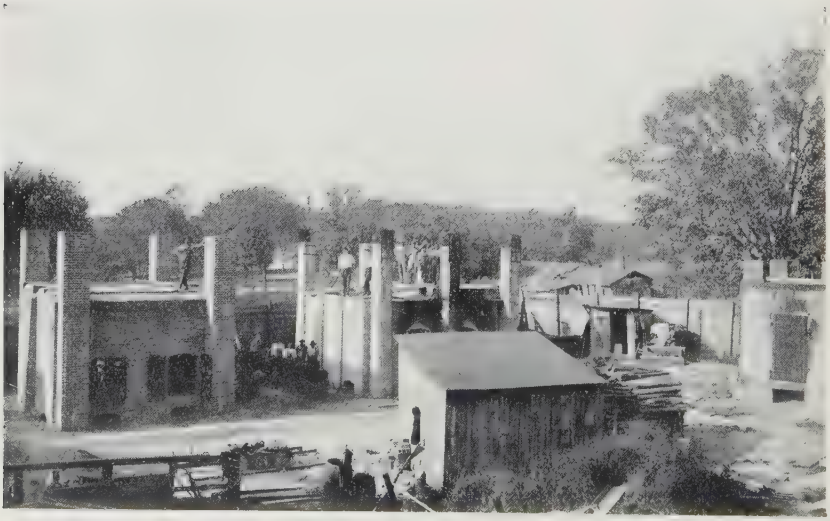


WEST END OF TESTING LABORATORY
Emery testing machine in rear; torsion machine and 60,000 lb. machine in foreground



EAST END OF TESTING LABORATORY

400,000 lb. machine on the left; 50,000 and 100,000 lb. machines on the right



COLUMBIA FIRE TESTING STATION

Two large buildings for testing floors; building on extreme right for testing partitions of marble for building the Washington Arch at Fifth Avenue and Washington Square, and a similar series of tests was conducted upon concrete mixtures for the foundation walls of the Cathedral of St. John the Divine. The wisdom of this costly purchase has been demonstrated repeatedly. The machine is still in perfect condition and is a standard of accuracy. Because considerable skill was required in its operation, the machine never served for regular student work, though of late years students have used it sufficiently, under watchful supervision, to understand its operation. It is really an instrument of scientific precision and must be treated accordingly.

After the rebuilding of the Fairbanks machine, it was used by a few students each year for research, but with the exception of a little work upon the cement testing machine which had been purchased with one hundred and fifty dollars of departmental funds in 1886, no systematic instruction in testing was given until 1892–93. In that year Professor Hutton by a second appeal to his friends and to various alumni raised the sum of one thousand dollars for the purchase of a Riehlé 100,000 lb. machine. Engineering students then began to make specified experiments upon the strength of building materials. About this time, too, the cement testing work was transferred to the department of civil engineering, upon the request of Professor William H. Burr, who succeeded Professor Trowbridge.

Following the removal from Forty-ninth Street to our present site, the laboratory requirements for students were raised, but the equipment remained the same. For the thirteen years from 1893 to 1906 no additions to the testing appliances were made, except a few measuring instruments. The gradual enlargement of classes produced a heavy demand upon the limited resources of the laboratory, and it was very difficult to give instruction in a creditable manner. During the same period, the number of commercial tests made in the laboratory had increased tenfold. The demand for new equipment was imperative, and the Trustees met the situation with a generous appropriation.

The installation of the new machines purchased with this fund has recently been completed. The old and antiquated Fairbanks machine, which was occupying too much valuable space, was sold and two new machines now stand in its place, one of the same and the other of double its capacity. During the installation of the new equipment several radical changes were made in the arrangement of the laboratory, chief among these being the removal of the cumbersome overhead belt drive and the substitution of electric power. Each machine is directly connected to its own motor, all controlled from a central switchboard. This adds much to the cleanliness, efficiency and appearance of the laboratory. An overhead trolley with a 1½ ton differential hoist has been put in place and will be of much service. Numerous minor changes and additions have been made, all contributing to the completeness of the outfit.

The equipment at present consists of the following machines: a 400,000 lb. Olsen universal machine, a 150,000 lb. Emery universal machine, a 100,000 lb. Riehlé universal machine, a 50,000 lb. Olsen universal machine, a 60,000 inch lb. Riehlé torsion machine, a 10,000 lb. Olsen machine for wire, small rods, etc., a 300 lb. Riehlé machine for fine wire, twine, cloth, leather, etc., a 1,200 lb. Keep static load machine, and a few other machines of less importance for conducting special tests. In addition to the above list, a 60,000 lb. Riehlé universal machine has just been installed, which is the joint property of the testing laboratory and the department of metallurgy. The machine was purchased by mutual arrangement, in order that the department of metallurgy might have a machine available at all times for the use of its students in special work on iron and steel. When not thus in use, it is available for the regular service of the laboratory. An alternate stress machine is to be secured under the same dual arrangement. A number of additions have also been made recently in the line of measuring instruments, tools, etc.

After Professor Hutton's resignation last spring, the laboratory and its staff were transferred from the department of mechanical engineering to the department of civil engineering, whose head, Professor Burr, is formulating plans for developing the laboratory upon a large scale. The laboratory has been thoroughly renovated during the summer, and the new machines are now all in commission.

In connection with the usual laboratory tests, dead weight and hydraulic tests are also made upon standard size floors and girders of reinforced concrete, hollow tile, or other types of modern building construction, at the Columbia fire-testing station yard. This station was established by the writer in May, 1904. It is situated at One Hundred and Sixteenth Street and Claremont Avenue, and consists of several small brick and concrete houses in which fire tests are made upon full size floors, girders, columns, partitions and all forms of fire-resisting construction. The houses conform to the fire test specifications of the New York and Philadelphia bureau of buildings. Numerous tests have been made in cooperation with the building and fire authorities of the cities mentioned. The station is fully equipped with standard pyrometers, water appliances, loading material, and all other apparatus necessary for properly conducting such investigations. The tests are severe, but practical, and are furnishing much valuable information upon fireproof building construction.

IRA H. WOOLSON

THE DEPARTMENT OF ELECTRICAL ENGINEERING

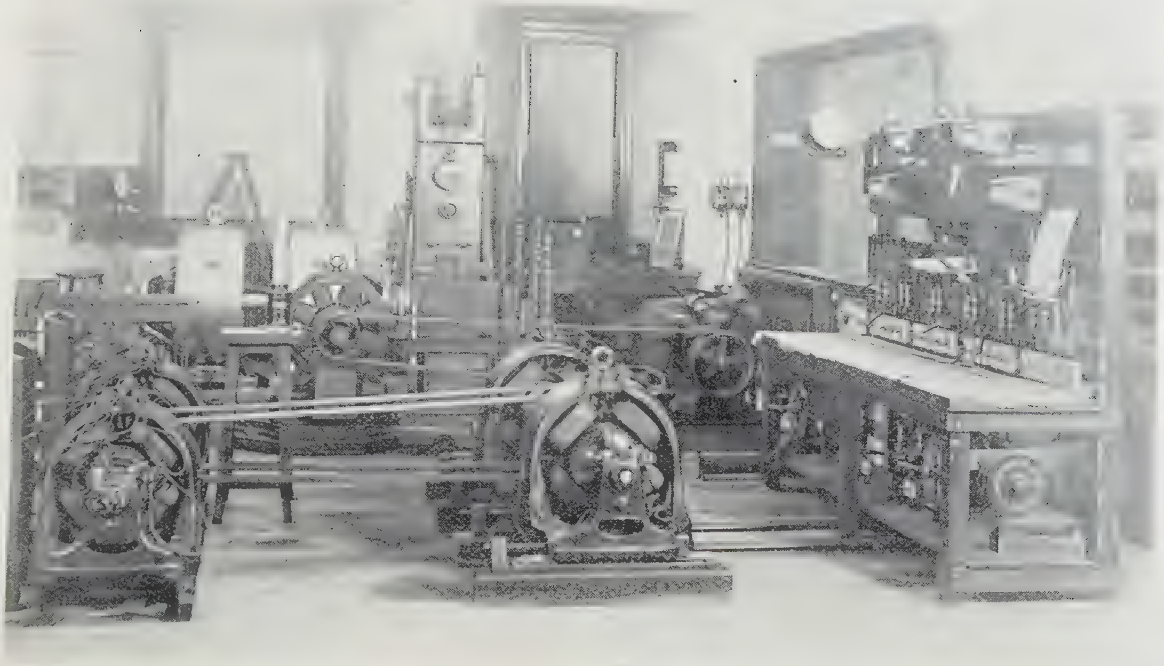
THE course in electrical engineering at Columbia University was organized in 1889, and was put in the joint charge of Dr. M. I. Pupin and the writer. It was one of the earliest established in this country. The instruction differed from that given elsewhere, in that the department of physics confined its work to that subject specifically, while all the applications of electricity were taught in the electrical engineering department. Furthermore, those who successfully completed this engineering course received the degree of electrical engineer, whereas in most other institutions it was and is still the practice to grant for this work the degree of mechanical engineer, or bachelor of science. In all other institutions at that time, electrical engineering was taught as a subdivision either of physics or of mechanical engineering. Even now at many of the institutions in which electrical engineering is taught, it has not been made really independent of one or both of these departments. This separation does not mean that electrical engineers should not be taught physics and mechanical engineering, but that this profession is just as complete in itself as civil or mining engineering, for example, and is not subordinate to any other branch of applied science. Of course, this is the only logical position, and every institution has tended toward the adoption of it, and sooner or later must do so. Still another feature of the course was the application to electrical engineering of the same methods that had been already adopted at Columbia for the courses in mining and civil engineering, which had then been in successful existence for many years. These methods consist in first making a man an engineer, and then making him a specialist in a certain branch, whether civil, mining, mechanical, or electrical engineering. In other words, fundamental subjects are to be thoroughly taught and made nearly uniform for all engineering students. Specialization in purely professional subjects should not be taught in the early years, and should not be carried very far even in the later ones.

An interesting feature of the electrical engineering course was and is the relative weight given to the various subjects, that is, the scope and character of the course of study. Fortunately, a proper apportionment was made in the original program of studies, and it has not been materially altered, certainly not in kind, even up to the present time. There is a tendency on the part of instructors in arranging an engineering course to give undue prominence to certain branches; for example, telegraphy, telephony, electro-chemistry, or the electric railway, may happen to be the preferred subject, and receive more than its fair share of attention. It cannot be said that any material exaggeration of its importance has been given to any one topic or point of view. Naturally, as any subject develops, and especially when it develops at a very rapid rate, as it has in this case, new fields present themselves, and the relative importance of different forms of apparatus also varies, but thorough instruction should not follow these changes too closely, as they are often temporary, and may be changed again before the student graduates. There are, however, fundamental truths that never change, and to these the student's time should be chiefly devoted.

Of the two instructors originally appointed, one had charge of the theoretical work, and the other gave instruction in the technical branches. In thus providing for and acknowledging the two sides of this subject, a proper balance was struck between them, and this policy has been continued. This arrangement avoided from the start a natural tendency to run somewhat to one extreme or the other in emphasizing the theory or the practice. Each instructor was able, therefore, to place as much stress as he pleased from his own point of view, without danger of subordinating or suppressing the other point of view, which was equally strongly presented by his colleague. It was also a fact that while each instructor was particularly trained to teach either the theory, or the applications, each fully appreciated the importance of the other's work.

The course as originally established was a post-graduate one, and had the advantage of dealing with thoroughly prepared students, thus economizing and making more effective the work of the department. It was found, however, as had been anticipated, that the number of graduate students was limited, because it required a four years preparatory course in some other engineering branch and a two years specialized electrical course to obtain the degree of E.E. There appeared to be no reason why it should take six years to secure an E.E., when the E.M. and C.E. degrees were awarded for four years of work. The logical conclusion was, that the electrical engineering course should be placed on a parallel basis with these other engineering courses. Accordingly, this plan was adopted, and a regular four years course was authorized in December, 1891. The first class, numbering sixty-five men, began work in October, 1892. Practically the same electrical subjects were taught as before, but the fundamental and allied subjects of mathematics, chemistry, physics and mechanics, were introduced in the first two years. The natural result was an increase in the number of students, because young men could enter directly from school. In the meantime, the teaching force, as well as the equipment, had been augmented, so that the larger number of students could be handled. Since that time, most of the students who have received the E.E. degree have pursued the regular four-year undergraduate course, though some enter from the College, or from some technical school with advanced standing, that is, they take up the electrical engineering course at the beginning of the second or third year. It is also the case that candidates for the higher degrees (A.M. and Ph.D.) take electrical engineering as a major or minor subject.

The requirements for admission to the electrical engineering course are the same as for the other applied science courses of the University. Having once entered, the engineering student has his time so occupied with necessary scientific and technical subjects, that it is not possible to introduce into the engineering courses such culture studies as history, languages, and literature. Recognizing, however, the importance of these studies to every professional man, the faculty recommend candidates to take advantage of the opportunities offered by Columbia College, and with this idea in view, the course of study of the College has been modified in such a way as to facilitate and encourage a combination of liberal and technical training. Under the existing arrangements, students may anticipate in the College two years of work in mining, engineering, or chemistry, so that when they receive the degree of bachelor of arts or science, they are prepared to enter the third year of the technical



DEPARTMENT OF ELECTRICAL ENGINEERING

PORTION OF ALTERNATING CURRENT LABORATORY schools and obtain their engineering degree two years later. As the average age at entrance is two years lower in the College than in the engineering school, students are enabled by taking this combined course of study to obtain the professional degree at the same age as those who begin work directly in the professional school. This combined six year course is strongly recommended, for the reason that engineers and chemists require the liberal training offered by a collegiate course quite as much as do lawyers, physicians, or clergymen. Experience has shown that those who have pursued a liberal course of study and enjoyed the advantages of such an education before entering upon technical studies have usually attained a higher standing in their profession, and have exercised greater influence in the community than those who have relied entirely upon a purely technical, or professional, course of study. The plan of instruction, so far as the fundamental subjects are concerned, is the same as that of the other engineering courses at Columbia and other high grade institutions. As already noted, the policy here is to avoid too early specialization and to teach the fundamentals for their own sake as thoroughly as possible. The writer has never believed in the plausible theory that mathematics, or chemistry, or any such general subject should be taught to electrical engineers by an electrical engineer. This may save time, but it does so at the expense of thoroughness, and real mental discipline. There is no easy road to learning, and one should always be suspicious of short cuts. Mathematics is a subject so fundamental, and so important, that it should be learned as such, so that what the student acquires is of standard quality. There is no such thing as electrical mathematics, and what an electrical engineer might choose and pick out of mathematics at a given time, would not be what the student might have occasion to use five years after. For example, the prominent application of vector analysis and imaginary quantities to electrical science, which has taken place within the last ten years, would never have been anticipated by an electrical specialist in the early development of the subject, particularly if his object had been to economize his own time and that of the students.

In order to teach these fundamentals thoroughly, it is evident that practically all of the first two years and a good part of the third must be devoted to them, thus leaving what may seem to be insufficient time for the more specialized, or professional studies. This may be unfortunate, but it is certainly less objectionable than any deficiency in fundamental training. The graduate will give practically all of his time from the age of twenty-two until he retires or dies, to the acquiring of special technical knowledge, and he will devote, in most cases, little or no time to general subjects such as mathematics, physics, and chemistry. The only place where he is at all likely to learn these subjects is in a college or a technical school. On the other hand, he could learn more about the actual construction of the various types of electrical machinery in one year in a factory than he could learn in ten years in a college. This should not be taken as meaning that practical apparatus and practical methods are not to be considered in technical education; they should be used as examples of the applications of science, and they are most useful and striking as such, but their *principles* should be dwelt upon rather than the details of their design, although there should be some introduction in the latter in order that the student may reach the point where his training enables him to understand what he sees in an electrical factory or power-house. Of course there is no objection to carrying his knowledge further, except that it almost necessarily implies a slighting of fundamental subjects. In short, he should devote his college work to those subjects which a college can teach advantageously, and not to those subjects which it handles in a way that is little better than a poor imitation of factory or station methods.

The staff of the electrical engineering department as constituted today comprises two professors, one instructor, a tutor, and two assistants, and following out the policy adopted at the organization of the department as set forth in the preceding pages, these officers devote their time to instruction in the applications of electrical science, leaving the purely theoretical and mathematical treatment of the subject to the officers of the department of electro-mechanics. The courses given in the electrical engineering department are about twenty in number. The elementary considerations of electrical and magnetic phenomena are taken up in the first term of the second year with all engineering students, and in the second term of the same year a course on the elementary principles of electrical machinery is given to the same students. Both of the preceding courses are open to College students who fulfill the necessary prerequisites. The third year students in electrical and mechanical engineering are given a course of lectures on the principles, management, and handling of direct current electrical machinery, which is paralleled by a course in the direct current laboratory. The electrical engineering students work in the direct current laboratory two afternoons a week throughout the year, and observe in minute detail the operation of direct current dynamos and motors, as well as factory and laboratory tests upon these machines. At the same time the department of electro-mechanics gives the third year students a course in mathematical physics bearing upon this direct current work. In the second term of the third year, the electrical and mechanical engineering students receive instruction in the design of electric lighting plants, including direct current distributing systems, and during the same period the electrical students are given a series of lectures on the design of direct current machinery which leads up to a complete design of an actual generator or motor. During the first term the fourth year student in electrical engineering is instructed in the action and applications of all types of electric motors, as well as in the practical problems of alternating current distribution and control, which is paralleled by a theoretical discussion of alternating current phenomena in the department of electro-mechanics. In conjunction with these courses the student also conducts a systematic series of experiments in the alternating current laboratory in which he applies the instruction given in these lectures, covering the operation of alternating current apparatus as well as factory and laboratory tests. In the second term of the fourth year, the student continues his laboratory work and is given courses of lectures on the electric railway, telegraphy and telephony, and the management of power plants and manufacturing establishments. He is also given a series of lectures on the design of alternating current apparatus. As a final requirement for his degree he must conduct an original investigation of some problem in electrical engineering and hand in a report of his results, which may be accepted as a thesis.

Great stress is laid upon the laboratory work in electrical engineering, as it is absolutely necessary to enable the student to understand electrical actions. Experimental lectures and the use of diagrams are valuable, but nothing can compare with laboratory instruction in demonstrating the actuality of electrical actions. On the other hand, in no other profession is imagination so necessary to the comprehension of the phenomena. It is not always possible in a lecture to convey to the student's mind the various actions which will take place in electrical circuits. If, however, he can demonstrate to himself these actions by actual experiment, he is then more apt to thoroughly understand them and remember them. For these reasons the electrical laboratories have been equipped with apparatus that the student may personally operate and study without special danger to himself. To simplify the laboratory work still further, the different machines have been assembled into unit sets, so that the work of a squad of students conducting experiments on one piece of apparatus is entirely independent of that of any other squad, and thus no time is lost by the vagaries of individual groups. During the past few years the equipment in the various machine laboratories has been considerably enlarged and improved by the acquisition of prominent types of apparatus. The instrument laboratory, in which the fourth year electrical engineering students receive instruction in the standardization of instruments and precise electrical measurements, was considerably improved during the past year by the purchase of standard instruments and equipment. It now serves to a considerable extent also as a standardization laboratory for the department of water supply, gas and electricity of the City of New York, which maintains, jointly with the University, an officer for the instruction given therein and for the conduct of the City standardization work.

In addition to the above outlined instruction to the electrical engineering students, the department gives considerable instruction in applied electrical science to students in the civil, mechanical and mining engineering courses, as well as to those studying chemistry and metallurgy. This instruction is in the form of lectures and abbreviated laboratory courses.

The students of electrical engineering receive a large amount of instruction in mechanical engineering subjects, including practice in the mechanical laboratories, in the testing of steam engines and of other mechanical appliances. During the first two years of the course, fundamental qualitative and quantitative courses with a large amount of laboratory work are given by the department of chemistry. In the fourth year courses in electro-chemistry are offered, so arranged that the theoretical instruction and laboratory work are parallel to each other. Particular attention is given to the electrical students by the department of physics, and this work is supplemented in the department itself by a thorough course in the careful calibration of instruments and in the study of advanced electrical measurements.. The civil engineering department provides a course on the resistance of materials, involving instruction in the design of girders, columns, and general structural work, and a course in hydraulics in the fourth year, which are particularly valuable for electrical engineers. A course in the second year under the department of metallurgy provides the electrical student with information on the manufacture of iron, steel, and copper, which are the materials he will utilize in his subsequent work.

Since the organization of the electrical engineering course in 1889, over three hundred students have been graduated, and they have entered all branches of the profession, many of them having achieved conspicuous success. Several graduates of the department occupy teaching positions at other institutions.

Francis B. Crocker

THE DEVELOPMENT OF MECHANICAL ENGINEERING AT COLUMBIA

FROM two old vocations or trades, that of the machinist, who, working in metal, produced desired forms and finish by foundry and forge, hand and machine tools, and that of the millwright, who, using both metal and wood, built mills and gearing to drive machinery for manufacturing purposes, there grew up the present profession of mechanical engineering. The transformation took place so gradually, that it is difficult to fix a date when the profession could be rightly so-called, but the causes and time are fairly well fixed by certain scientific discoveries and epoch-making inventions. The whole change is very similar in kind to the development of the modern physician from the old time barber.

In the early forties of the last century the steam engine of Watt had been applied extensively to locomotives, steamships and mills, a great variety of special lines of machinery had developed, notably that for spinning and weaving, and there had grown up a necessity for more accurate machine construction based on designs completely worked out beforehand, with each piece accurately proportioned and truly designed. As a necessary consequence of the demands of competition for economic production it became clear that the old method of building a different machine for each purchaser would have to be abandoned and for it substituted a more economical method of rapid manufacture of a standardized line of machines. This called for a greater skill and mental capacity on the part of constructors than was required in the early days when the ordinary mechanic executed a design with chalk on a piece of board, largely free-hand, made every part and erected the machine in running order where it was wanted. In the sixties and early seventies, through the work on the theory of elasticity by Fairbairn, Unwin and Rouleaux, applied to the design and construction of machines, through the development of thermodynamics by Clausius, Hirn, Rankine and Zeuner, and its application to the transformation of heat into work, through the improvement in methods of manufacturing by refined, automatic tools and gauges by men like Pratt, Whitney, Sellers and Bement, and through the study of the problems of shop and factory organization necessary for the handling of large bodies of men, there had grown up a mass of scientific principles and data forming a true basis for machine design, construction and manufacture.

To properly train men for taking up this work and extending it, societies like the Franklin Institute and courses in schools like Stevens, Cornell, Pennsylvania and the Massachusetts Institute of Technology were organized, and their members and graduates immediately assumed positions of influence and usefulness in the industrial world. Since that time the invention of new machinery and the discovery of new methods of performing specified operations, the further development of scientific designing of machines arranged to operate in the most economical manner possible, the classification and collection of data from tests and observations, the deduction of general laws from these data, the extension of the directing of manufacturing from that of machinery itself to the industries dependent upon machinery, all these have occupied the mechanical engineer with work requiring a very high order of training, such as can be derived only from a proper coordination of study in the school with that in shop and factory.

Today the mechanical engineer exerts the same controlling force in the manufacturing industries as does the mining engineer in the development of the mineral resources of the country, and the success of the American mechanical engineer in his line of duty needs no better proof than the world-wide respect accorded to American machinery and to the Yankee ingenuity and skill that invented, designed, manufactured and sold it in foreign markets in open competition. The last census returns show that the manufacturing industries imported into this country goods to the value of one hundred and twenty million dollars during the year 1905, while the value of the exports reached the sum of six hundred and eighty-six million dollars, or five and one half times as much as the imports. In the United States the manufacture of machinery, classified in the census as the products of foundry and machine shop, which is really only a part of the whole, gives employment to over four hundred thousand men and uses raw material valued at over three hundred and twenty-four million dollars, which by the labor and skill expended upon it appreciates in value to eight hundred million dollars or 153 per cent., while the general manufacturing industries depending upon machinery for their existence employ over five million people, and yield yearly a product worth over fourteen billion dollars.

In a pamphlet entitled "A proposed plan for a school of mines and metallurgy," submitted to the trustees of Columbia College in 1863, by Thomas Egleston, a graduate of the Paris *Ecole des Mines,* there appears an interesting statement of the object of the school, which was "to furnish to the student the means for acquiring a thoroughly scientific and practical knowledge of those branches of science which relate to mining and the working up of the mineral resources of this country and to supply to those engaged in mining and metallurgical operations persons competent to take charge of new and old works and conduct them on thoroughly scientific principles." This statement was retained in the published announcement of the school as finally organized, and indicated a desire to fit men for the mining and metallurgical industries by a course primarily, though not exclusively, technical. No mention is made, however, of the general manufacturing industries involving the construction and use of specially designed machinery, unless the words "working up of the mineral resources of the country" can be so interpreted. That it was not the purpose to pay particular attention to this class of industrial activity, which even at this time had become the province of the mechanical engineer, is indicated not only by the course of study adopted, which contained little else than chemical, geological, metallurgical and mining subject matter, but also by the opening announcement, in which the stress is laid on the development of the mineral resources of the country, " to which we mainly look for the payment of the national debt." Coming at the close of the War this recognition of the dependence of national prosperity on the mining engineer and metallurgical engineer is interesting and broadening, placing, as it does, the engineer on a very high level of usefulness. It seems a little peculiar to the mechanical engineer of today that the equal importance of a scientific preparation for manufacturing the extracted minerals into machines and structures by which other raw materials, not minerals, may be converted into elements of natural wealth more valuable and more immediately useful, should have been ignored. This may have been due to the extreme conservatism of the founders of the school or to their stronger personal familiarity with the mining and metallurgical phases of engineering practice. Or perhaps it was due to the youth of mechanical engineering, which while recognized at the time, was still in many quarters regarded with some prejudice by scientific men because of its lowly origin, not yet forgotten.

Columbia first recognized the profession by establishing a course leading to a degree in mechanical engineering in 1897, the year of the removal to the present site, and thirty-four years after the formulation of the scheme for the School of Mines. To be sure, mechanical engineering subjects had been taught during this time, but only as subordinate matter necessary for all engineering students in mining, metallurgical, civil and electrical courses, somewhat on the plane of mechanics or chemistry. No instruction in mechanical engineering was given in the first course for mining engineers, unless references under mechanics to hydraulic and pneumatic machines and a short treatment of the elements of machines, defined in the announcement as "the application of mechanics to water wheels and turbines," may be so considered. During the early years, visits were made to machine shops to secure data for a memoir; the subject of resistance of materials was introduced; heat as applied to the steam engine was treated in a few lectures under physics; and fuels with their application under applied chemistry. In the 1877 announcement there is noted under the collection of the civil engineering department, models of water wheels, steam engines and valves, and in that of the mining engineering department, models of blowing and hoisting engines and fans. During this same year there was secured the first experimental steam engine, equipped with brakes, indicators and surface condenser, which, however, was used under the direction of the professor of civil and mining engineering.

With the reorganization of the School of Mines, in 1877, and the advent as head of Professor William P. Trowbridge, also a graduate of the *Ecole des Mines,* and thus a mining engineer by education though by occupation also a civil and mechanical engineer, the first treatment of mechanical engineering as a subject matter was assigned to an instructor in mechanical engineering, part of whose duties consisted in giving "practical instruction in the management of machines and engines and in the construction and use of tools." This addition to the course was no doubt due to Professor Trowbridge, who, as vice-president of the Novelty Iron Works and author of two books, "Heat and heat engines," and "Construction of steam boilers," was familiar with at least one phase of mechanical engineering, but the meagerness of the recognition seems to indicate that the mechanical engineer was still regarded as a sort of machine-shop man and engine operator. The new course of instruction adopted contained, however, much more of mechanical engineering than before, including a course on dynamics of machinery in the third year of the mining engineering course, divided into "work and resistance, friction in machines, dynamometers and brakes, regulators and governors, efficiency of machines and strength of parts." In the third year of the civil engineering course there were offered lectures on the principles of mechanism, divided into "kinematics, transmission and transformation of motion, elementary combinations of mechanism, link work, bands, hydraulic connections, pulleys and chains and valve gearing." A third course given in the fourth year of civil engineering on machines, including prime movers, was divided into "animal power, water power, steam power, heated or compressed air and winds." Other courses were offered in the fourth year on the principles of heat applied to steam boilers, the mechanism of engines, machine tools, ventilation of public buildings, pumping machinery, hoisting machinery and compressed air. In spite, however, of the pretentious scope of the treatment in the announcement, the whole series of courses on mechanical engineering subjects was covered in about four hours per week. To supplement the class room work the instructor in mechanical engineering directed the students in the preparation of one of their summer memoirs, which was devoted to a report on an inspection and practical study of several manufacturing shops engaged chiefly in building engines.

From this time until 1892 practically the only change in the situation was the creation, in 1881, of an adjunct professorship of mechanical engineering, Frederick R. Hutton being the first incumbent of this office. In the same year, that in which was also recorded the death of Professor Trowbridge, the department of mechanical engineering was created, but contrary to the usual practice in the School of Mines, this department granted no degree and existed, therefore, only for the instruction of students in other departments—this in spite of the development of the profession reflected clearly in the organization of the American Society of Mechanical Engineers twelve years before, and in the establishment of many new college and university courses in mechanical engineering, the graduates from which at this time had reached positions of influence and honor. The absence of recognition at Columbia was no doubt due to lack of room and of funds with which to secure the necessary equipment of shops and laboratories, as well as to the great strength and popularity of the mining course, and it was not until 1897, when the University had moved to its present site, that a course in mechanical engineering leading to a degree was established, and the degree itself was conferred for the first time in 1901, only six years ago. This action was made possible by the great increase in room made available by our new buildings, by the offer of Teachers College to permit their shops to be used by students in mechanical engineering, and by the gifts of laboratory apparatus, freely offered or secured by personal solicitation by the head of the department. The work of the students in the new course was practically the same in the first two years as for students in electrical engineering except that the former were required to do more shop work. Practically all of the courses given by the department in previous years to students in other departments were retained and some courses were expanded. New courses in Shop economics were offered by the head of the department, on Machine design in 1900, Engine design in 1901 and Experimental laboratory in 1902. All of the shop work instruction was given at Teachers College by instructors of that school, but instruction in mechanical drawing was given by the department of mechanical engineering to students in all departments. The fourth year work for students in mechanical engineering was laid out in six groups, each representing an option, known as marine, naval architecture, dynamic, electrical, mining, and locomotive. These fourth year options were abandoned in 1905 because of the lack of demand, insufficient instructors and improper equipment, and but one course was offered in mechanical engineering, a practice which now prevails.

In the mean time, in order better to adapt the entire course to the demands of the profession, new subjects in mechanical engineering were introduced and old ones changed, while all instruction was made more concentrated, more analytical and less superficial than had been the case when these courses were offered to students in other departments who did not require such detailed and complete treatment. The instruction in mechanical drawing was transferred in 1905 to a separate department, that of mechanical drafting, and the duplication of courses in theoretical hydraulics, elasticity and properties of materials has just been eliminated by transferring all of this instruction to the department of civil engineering, to which, for the sake of unity, has also been transferred the testing of materials, that department at the same time transferring to the department of mechanical engineering the courses in kinematics, pumping machinery, hydraulic power machinery, heating and ventilation. The old course in machinery and mechanism has been divided and expanded, part becoming a course in kinematics and the remainder forming part of the machine design work. The old course on dynamics of motors and motors other than steam have been dropped, as the subject matter is given in greater detail in other courses. Graduate courses in vibration and balancing of machines, mechanics of the steam turbine and experimental research have now been offered for several years and taken by graduates of this and other institutions. Many papers have been published containing the fruits of their work. New methods of instruction in experimental laboratory work have been developed for students in all courses to the end that the apparatus may serve as a practical demonstration to each student, through his own personal observation, of all of the important principles of mechanics, hydraulics, thermodynamics, operating in however complex a fashion in full sized standard machines and apparatus, our equipment of which, with the necessary measuring instruments, now being unexcelled in this country.

The whole subject of the design of machinery has been reorganized to begin in the second year with empiric design, standards of practice and kinematics, these leading together to the design of machines with specified movements for the accomplishment of any predetermined operation or for the generation of power from steam, water, gas and oil, so that this subject is now thoroughly practical and modern. The proper combination of complete machines of standard form, such as can be purchased in the open market, into groups constituting the design of mills and power plants is a logical sequence to the individual treatment of the analytical work in drafting room, class room and laboratory, and on the characteristics of each separate machine, and is treated in the fourth year. In conjunction with the latter, instruction is given on works management, business methods, organization of working forces, cost keeping, specifications and contracts. In the summer months practical work and reports thereon are required of all students in mechanical engineering on the machinery and organization of shops, power plants, mills and the methods of the factory office. It is believed that this part of the work is very valuable, as personal contact with great industries and the critical analysis of existing conditions has been shown by trial to have a general broadening influence on the student and to assist him to an astonishing degree in the formation of proper conceptions of the subjects and principles taught in the class room. The easily stated laws of far-reaching consequences derived from the fundamental training in mathematics, physics and chemistry and the subjects of their immediate application are never completely understood until, by repeated analysis of the machinery involving them and of engineering works which are building or using the same, their disguise is removed and they stand revealed in their full simplicity, however complex may have been their original association. It is only on a foundation of clear conception and full comprehension thus established that the true professional work of the course can be built. CHARLES EDWARD LUCKE

KINGS COLLEGE ALUMNI—II

CLASS OF 1759

William Hanna

William Hanna received the degree of bachelor of arts from Kings College in 1759. The degree of master of arts *honoris causa* was conferred upon him in 1765 and by Yale College in 1768.

Epenetus Townsend

Epenetus Townsend graduated from Kings College with the degree of bachelor of arts in 1759, and received the master's degree three years later. In 1767 he went to England to take holy orders. He returned in the following year and entered upon his pastoral duties as Episcopal minister at North Salem, New York. In 1776 he was sent to the Whig committee, but was dismissed. Three weeks after the Declaration of Independence he abandoned his pulpit, and in October he was a prisoner at Fishkill. In March, 1777, he was removed to Long Island, and in 1779 he embarked with his family for Nova Scotia. The vessel foundered and everyone on board perished.

CLASS OF 1760

Samuel Bayard

The same ship which brought to the western world and landed in New Amsterdam in the month of May, 1647, the last of the Dutch governors of New Netherlands, had on board Stuyvesant's beautiful wife and his sister Anna, who was the widow of a Samuel Bayard. She was accompanied by her daughter Catharine and her three sons, Petrus, Balthazar and Nicholas. It has long been a tradition in the family that Samuel Bayard was a French Protestant divine and professor, who, with his wife, Blandina Coude, a lady of rank, fled from Paris to Holland during the religious troubles which disturbed their native land in the sixteenth century. However, an endeavor on the part of the eminent genealogist, General James Grant Wilson, to verify this tradition in The Hague, proved to be unsuccessful. The family name is variously spelled Bayert, Baird, Biart, Biard and Byard.

Little is known of the life of our alumnus, Samuel Bayard. He was born in 1740, and successively held the positions of deputy secretary to the colony of New York and deputy register of the ordinary and prerogative court of New York, receiving his appointment to the latter position in 1774. In the same year he was engaged in a controversy with other proprietors of lands in New York, and on behalf of himself and his associates submitted a memorial to the British government, praying to be put in quiet possession of a part of the tract called the Westenhook patent. After General Lee took command of the City of New York, in 1776, Bayard was made a prisoner and placed under guard at the house of Nicholas Bayard. Subsequently, Samuel Bayard entered the service of the Crown and in 1782 was a major of the King's Orange Rangers.

ANTHONY HOFFMAN

Anthony Hoffman was the fourth child of Col. Martinus Hoffman and Tryntje Benson, and a member of the fourth generation of the Hoffman family in the United States. The family is of Swedish origin, the Scandinavian form of the name being Hoppman. Several individuals having the name of Hoffman emigrated to the Swedish colony in Delaware and of these some were transferred to New Amsterdam by Governor Stuyvesant when he conquered New Sweden. The ancestor of our alumnus, however, emigrated from Holland to Esopus, near Kingston, New York, in 1658, and later moved to New Amsterdam, where he was living in 1661. Martinus Hoffman, the grandson of Martin Hoffman, the first member of the Hoffman family in America and the father of our alumnus, moved from Kingston to Red Hook, Dutchess County, New York. Martinus Hoffman served successively as justice of the peace and judge of the court of common pleas in Dutchess County.

Anthony Hoffman was born August 12, 1739, and was baptized at Camp Church. In 1760 he received the degree of bachelor of arts and in 1763 that of master of arts from Kings College, and from 1784 to 1787 he was a regent of the University of the State of New York. He lived in Red Hook, New York, and was a supervisor of the town of Rhinebeck from 1781 to 1785. He was a colonel in the army and served on several military committees. He was a member of the first, third and fourth provincial congresses and was elected to the New York legislature in 1783. He owned a great deal of property in Dutchess County and many transfers and conveyances of land are recorded in his name in the county clerk's office at Poughkeepsie. In 1771 he was appointed loan officer of Dutchess County and took the oath prescribed by the act of the general assembly of the province of New York.

Anthony Hoffman married Mary, daughter of Harmon Rutgers, the third, of New York, and they had one child, Eliza, who married Nicholas Gouverneur Rutgers. Anthony's will, dated February 24, 1790, is filed in the Surrogate's Court at Poughkeepsie, New York. It was proved by John Ogden Hoffman on May 18, 1790; hence the date of Anthony's death must have been 1790 and his age at death fifty years. In his will he leaves legacies to his wife Mary and to his daughter and only child, no name being given, as well as to his sister and his brother. He also gives freedom to all his slaves and manumits them entirely. The signature to this will was witnessed among others by Benjamin Kissam, who entered Kings College in 1775.

Philip Livingston

Philip Livingston was born in 1744. In 1763 he received the degree of master of arts from Kings College, having graduated three years previously. He was a member of the New York Provincial Congress, and a trustee of Columbia College from 1797 to 1806.

John Marston

John Marston was born on December 5, 1740. He was the youngest child of Nathaniel Marston and a member of the fifth generation of the New York branch of the Marston family. He received the degree of bachelor of arts from Kings College in 1760, and like all of his classmates was awarded the master's degree three years later. He married Rachel Lawrence in 1768. He resided in New York and died there in the year 1797 prior to April 6, when a license to administer on his estate was granted to his sons Thomas and John, Jr. These two sons were members of the Committee of Safety during the Revolutionary War. John Marston, our alumnus, had five children, three sons and two daughters.

Robert Watts

Robert Watts received the degree of bachelor of arts from Kings College in 1760 and that of master of arts in 1763.

Isaac Wilkins

Isaac Wilkins of New York was an Episcopal minister. He was born in Jamaica, West Indies, in 1741, and was the son of Martin Wilkins, a rich planter who died when his son was quite young. Isaac was sent to New York to be educated, and graduated at Kings College with the degree of A.B. in 1760. He prepared himself for the ministry but did not take orders. In 1763 Kings College conferred the degree of master of arts upon him. Having settled in the county of Westchester, he was returned as a member of the assembly and served from 1772 to 1775, becoming the leader on the ministerial side. His influence with his associates and with his party was very great. When the question of appointing delegates to the Second Congress came up, he made a speech which was much admired by his friends for its eloquence, clearness and precision. Schuyler and George Clinton were his provincial antagonists in the debate. Mr. Wilkins's zeal and extreme loyalty, to which he occasionally gave utterance in essays, rendered him very obnoxious to the Whigs. It is a singular circumstance that the youthful Hamilton, who was also born in the West Indies, undertook the task of replying to two of his political effusions. One of them, "Congress canvassed," which was signed A. W. Farmer, was extensively circulated, and it as well as the pamphlet about "The future of the controversy between Great Britain and the Colonies," was summarily disposed of whenever either of them fell into the hands of those whose measures were criticized and condemned. Both were burned in all parts of the country, and on some occasions the former was dressed in tar and turkey buzzard's feathers, nailed to the whipping post and set on fire, as the best means of showing the indignation of its author's treason and sentiments. As a result Wilkins found it desirable to leave America and go to England.

In 1776 he returned to Long Island where he remained until peace had been reestablished, when he retired to Shelbourne, Nova Scotia. He remained in that province for several years and lived a part of the time at Lunenburgh. At a meeting of the wardens and vestrymen of the congregations of West Chester and East Chester on the seventh day of June, 1798, it was resolved that the said congregations do unite and associate in order to procure a clergyman to officiate for them. Accordingly on the ninth day of March, 1799, the Rev. Isaac Wilkins, A.M., was elected minister of the two churches. At a vestry meeting on the twenty-second day of July, 1801, it was resolved "that the Rev. Isaac Wilkins, being now in priest's orders and having officiated for us for two years past to our satisfaction be now called to the rectory of this parish." Wilkins died on February 5, 1830. His remains were interred on the south side of the chancel of St. Peter's Church under the following inscription: "This monument commemorates the filial piety of the Rev. Isaac Wilkins, D.D., the honest and able representative of this borough in 1775. *'I leave America and every endearing connection because I will not raise my hand against my sovereign nor will I draw my sword against my country. When I can conscientiously draw it in her favor, my life shall be devoted to her service.'* A scholar, a gentleman and a Christian, he lived for 31 years the diligent and faithful minister of this parish. Placed here as he believed by his Redeemer, he was satisfied with his lot, nor ever wished nor ever went to seek a better living. Died 5 February, 1830, Ætat. 89." His remains are deposited under the chancel of the old church beside those of his wife, Isabella Wilkins, daughter of the Hon. Lewis Morris.

The *Christian Journal* for March, 1830, contained an interesting sketch of the career of our alumnus, from which the following paragraphs are taken:

Although from early life of a religious turn of mind, much devoted to theological reading, attached to clerical society and cherishing an affection and a desire equal to his fitness for the ministry, it was not until he had attained to nearly three score years that Dr. Wilkins found himself sufficiently released from civil and secular cares to gratify his early and abiding preference for the ministry as a profession. He was ordained deacon and afterwards priest by the Rt. Rev. Bishop Provoost [of the class of 1758]. He continued in the exercise of his public duties until within a few months of his death, and was for many years the oldest surviving alumnus of Kings College.

He explained and enforced the doctrines of the gospel, the distinctive principles of our church and the whole range of Christian obligation and duty, with a clearness that manifested his own understanding of them and with an earnestness that proved how deeply his heart was engaged in the work. He was conscious of the existence of no error in the faith or practice of the Church against which he would hesitate boldly and fearlessly to address himself. He saw nothing to be his own duty or that of his people to which he would not in a most uncompromising manner devote himself or which he would not most faithfully urge and enforce upon them. It has been said of him, and it is believed to have been most justly said, that had he lived in times of martyrdom there is not that thing which he thought it his duty to say or do which he would have left unsaid or undone, or an act or word which he deemed inconsistent with the most rigid demands of duty and of conscience which he would have done or said to save his life. His was a piety and virtue which would have remained unmoved when those more boasted might have found more plausible excuses for giving way.

From the year 1801 until in the year 1821 he was obliged by the infirmities of age to decline, Dr. Wilkins was uniformly returned as the clerical deputy from the Diocese of New York to the General Convention and he attended the greater number of meetings of that body. There and in the diocesan convention he was an able and enlightened advocate of sound principles of ecclesiastical polity and of such measures as in his conscience he believed to be most agreeable to them. Indeed, never had the church a more disinterested friend. He overlooked all selfish considerations tending either to personal ease or to the point whither he thought himself drawn by duty and conscience. The strength of his faith and the clearness of his religious views were eminently conspicuous during the progress of a most painful and distressing disorder towards its fatal termination.

Isaac Wilkins had four sons and five daughters. The eldest son Martin was a distinguished member of the New York bar and the proprietor of Castle Hill Neck. The second son was Isaac of West Chester, who married Charlotte Seabury, daughter of the Rt. Rev. Samuel Seabury. The third was the Hon. Lewis Wilkins of Windsor, Nova Scotia, member of the Assembly, Speaker of the House for that province from 1806 to 1817 and judge of the Supreme Court.

LEONHARD FELIX FULD

HIGHER EDUCATION IN SOUTH AMERICA

EXCEPT Brazil and Panama, all of the republics in the southern continent possess universities. The former country has a variety of technical and professional schools that have not yet been combined into a single institution of higher learning, while the latter boasts only of a normal school. As happens elsewhere in the world, however, the gross number of universities accredited to a particular state is not necessarily an evidence of greater efficiency in education. On the contrary, it seems to be the case in South America that the backward republics are supplied, proportionately or actually, with more institutions of that name than their enterprising and prosperous neighbors are.

Of the many universities in South America, five enjoy special prominence for their age, stability, modern organization, liberal spirit, excellence of curriculum, superior mode of instruction, distinction of their graduates, or for the union of several of these characteristics. The institutions in question are the University of St. Mark at Lima, Peru, the University of Chile at Santiago, the University of Montevideo, in Uruguay, and the Universities of Buenos Aires and of La Plata in the Argentine Republic. The oldest of these educational establishments, and in fact the first to be founded in the New World, is the University of St. Mark (Universidad Mayor de San Marcos). Created by royal charter in 1551, it antedates Harvard University by eighty-five years. Of the five institutions, four are located in the temperate countries of the south where the educational facilities and achievements surpass those of the northern states.

The universities are organized by faculties in which are included those of philosophy and letters, fine arts, law, political and social science, natural science, medicine and theology. In some cases special divisions or combinations of these branches of knowledge are made; in others certain technical and scientific institutions are aggregated to the university body. All are governed by rectors who are assisted by a university council, composed of the deans of the faculties and of elected professors or heads of institutes. Being under the direct control of the state, they are subject to the ministry of public instruction.

With the exception of their schools of medicine, the universities, as a rule, are poorly installed. The old buildings that quarter them served originally as convents, hotels, private houses and the like. In arrangement of rooms, in allowance of space, as well as in light and ventilation, the edifices are often quite unsuited to university exercises.

As a partial compensation for their inferior housing, the universities are relatively well equipped materially and intellectually. For their technical and scientific departments, large quantities of modern apparatus have been imported from Europe, and in most cases the apparatus is intelligently used. Laboratories, workshops, practice schools, model plants, institutes, and museums are available, either within the university itself, or, if independent of it, at least convenient of access. The professors are commonly graduates of the institution, and many of them have studied in Europe. Some of the specialists on the teaching staff are Germans, Frenchmen, or Italians, whose services are contracted for a given period of time, or until the native instructors are capable of performing the work. A considerable number of the university professors, however, do not regard their educational duties as constituting their real vocation. Primarily they are scientists, physicians, lawyers, men of letters, politicians, or merchants. Their participation in university exercises, therefore, is usually a means to an end. They desire the addition to their incomes, the diversion from their customary occupations, the larger acquaintance, or the social or political preferment that may wait upon their connection with the university.

One of the curious uses, indeed, to which those who direct the course of higher education in South America are put, is the employment of university professors in high offices of state from the presidency of a republic downward; and the acceptance of such positions does not necessarily oblige the professors to abandon their chairs. From the relation thus engendered of politics to higher education, no particular harm seems to befall the latter. So much cannot be said of another sort of contact between the two elements.

In their capacity of government institutions the universities have to submit their policy and administration, their teaching staff and their curriculum to the uncertainties of political manipulation that may not always have a politico-professorial hand to pull the wires. Freedom in the expression of opinion, in the application of method, or in the choice of subject on the part of the professor is apt to be regulated more or less by a politician's estimate of his personal needs and of his educational services.

Comprehensive though the scheme of instruction in the leading institutions of higher education in South America is, it does not approximate them to the great universities, properly so-called, of the United States. Rather do they resemble our better sort of college with the superaddition of a number of professional schools. The work done under the university faculty of philosophy and letters, and under that of natural science, corresponds to the instruction given in the colleges and in the undergraduate departments of our universities. Stress indeed is laid, not so much on the studies that make for general culture, as on law, medicine, and engineering. The number of years of attendance required of students in the professional schools, furthermore, is often greater than the number demanded in our own institutions. The men are admitted from the secondary schools, which are commonly called colleges (*colegios*) or institutes (*institutos*) directly into the courses offered by all the faculties, professional as well as non-professional. Women students are rare, and coeducation, beyond the kindergarten age, has little foothold, as yet, in South America.

So far as concerns the five universities previously mentioned, whatever may be surmised of the institutions of lower rank, their methods of teaching are, on the whole, sound, and the results they attain satisfactory. Nevertheless, certain educational defects which impede the efficient operation of these centers of higher learning are visible. In the first place, the curriculum at times is overcrowded. This circumstance may be ascribed chiefly to an ambitious desire to insert novelties from the courses given in foreign universities, without due regard to their fitness to the needs of the student community. Insufficient attention, moreover, is paid to the distribution of labor among the corps of instructors. A professor may have in charge so many subjects (*cátedras*), often distinct in their nature, that he is unable to teach them properly, while a colleague may have so few as to make it hardly worth his while to spend his time in university work. The fact that a goodly number of those who lecture and conduct recitations are not educators by profession has already been observed. To it should be added the circumstance that the salaries paid by the government to the professors, when not in arrears, are too small to afford them a suitable maintenance. Also, outside of the purely professional schools, no slight obstacle to effective work on the part of the students is offered by the frequent absence of note-taking at lectures. Neither the furniture of the class-rooms nor the university regulations seem to provide for the performance of this needful duty. Minute records may be kept of what the professor has done from day to day, but except for the stated examinations, the students do not appear to be held very strictly to account. A languid interest in the topic of study and a disposition to shuffle along the path of routine, therefore, are occasionally to be noticed in both teachers and taught. That in such cases superficiality may be the intellectual outcome is not astonishing.

The official maintenance of scholarships in foreign universities, moreover, both European and American, as practiced by several of the republics in the southern continent, has not been altogether successful. Since the choice of incumbents is made by the governments themselves with reference to favoritism rather than to personal fitness as determined by competitive examination, the scholastic achievements of the political protégés are not extraordinary. Even in cases where the students have fulfilled expectations, their native country does not always reap the profit, for some of them are inclined to remain in the land of their educational adoption. On the other hand, young South Americans sent abroad under private auspices show much better results from their foreign training. Because of the natural affinities existing between Europe and the countries of southern Latin-America, most of the student travelers gravitate toward France, Italy, and Germany. Of those who come to the United States, the majority are sent to institutions in the smaller towns, and the practice seems likely to continue until the parents and guardians of the young men can be assured of adequate protection for their charges against the evils that haunt the great cities.

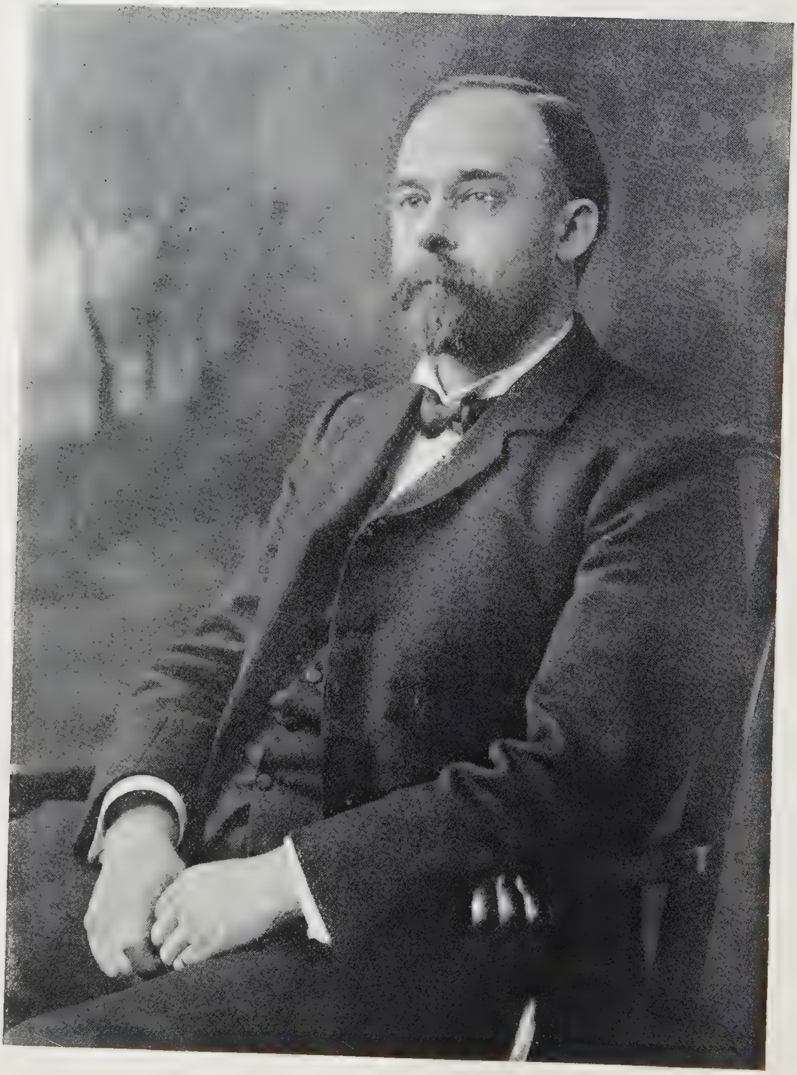
The number of students in actual attendance upon any South American university varies considerably from year to year and even in the same year. Attendance indeed does not seem to be very strictly enforced. Strikes occasionally happen. If dissatisfied with some university regulation, or with the conduct of some professor, both dictated more or less by governmental interference, the student body simply absents itself until a settlement of the grievance can be obtained. As a rule, furthermore, not much solidarity or college spirit of the American type prevails among the men. Fraternities, athletic and scholastic associations, and intercollegiate contests of any sort are almost unknown. The feebleness or lack of these qualities and forces is responsible in great measure for a tendency sometimes visible on the part of the students to indulge in diversions of no benefit to them morally or otherwise. So far as the energy of university men takes on a corporate form, it is apt to reveal itself more especially in political demonstrations.

To these characteristics of student life in the southern continent, however, a significant and hopeful exception should be noted that might prove suggestive, in the intercollegiate sense at least, to the men and women of our own universities. Under the auspices of the Student Association of the University of Montevideo, an international congress of students will be held at the Uruguayan capital in January, 1908. Representatives of many of the higher institutions of learning in South America will meet to discuss topics of particular interest to university men, such as the relation of the secondary school to the university; the courses and methods of instruction in the university; the choice of careers; the relations of professors and students; and the merits of universities managed as private corporations compared with those of institutions subject to the control of the state or placed under ecclesiastical supervision.

The great disability from which the universities in South America suffer while striving to perform their duties to the community is the feebleness of public interest, notably in matters pertaining to higher education. Efforts at university extension usually receive small encouragement, nor are the various university publications read with any great degree of attention. Rarely, if ever, does a person of wealth endow a professorship, contribute to the foundation of a university, or give to it any financial support, unless the church has something to do with its management. In localities where this spirit of indifference, so disheartening to educational and literary enterprise, does not prevail, a sort of intellectual cult takes its place. This consists in the overweening respect accorded to the spoken and to the written words of some authority, to question whose *ipse dixit* would be as heretical as the discussion of any topic not mentioned in his works would be fatuous. Out of the opinion still current, also, that the educated alone should rule while the unschooled are only to obey, rises the idea that education, and in particular university education, is the privilege of a few and not the right of all.

That these phenomena, fostered as they have been by centuries of historical tradition, are passing phases of a growth in culture there is good reason to believe. The nations of the southern continent are acquiring a confidence in themselves, a stability of institutions, a power to develop their resources, and an ability to draw what is useful from Europe and the United States. Of these reassuring tendencies a conspicuous example is afforded by the invitation which the leading universities of the United States have received for the first time to participate in the proceedings of the fourth Latin-American Scientific Congress that will be held at Santiago, Chile, in December, 1908. To signalize this entrance of the United States into scientific fellowship with Latin-America, the title of the Congress is to be changed to Pan-American. Such an appreciation of the value of an intellectual *rapprochement* among all the sister republics of the New World, it is to be hoped, may stimulate public interest in higher education to such a degree that henceforth the universities of South America will be enabled more properly to fulfil their function in the state and in society.

William R. Shepherd



LUCIEN MARCUS UNDERWOOD
PROFESSOR OF BOTANY, 1896-1907

LUCIEN MARCUS UNDERWOOD

PROFESSOR UNDERWOOD died suddenly at his home in Redding, Connecticut, on the afternoon of Saturday, November 16. He had complained of insomnia and headache at intervals for several weeks, but none of his associates had regarded his condition at all serious, so that the news of his death came as a great shock to all.

He was born at New Woodstock, New York, on October 26, 1853, graduated from the Syracuse University with the degree of Ph.B. in 1877, and received the degree of Ph.D. from the same institution in 1879, and that of LL.D. in 1906. He was early attracted to the study of natural objects and formed considerable collections of plants, animals, and geologic specimens while a student, at which time my correspondence with him began. He very early took a special interest in ferns, and perhaps the first scientific communication of his that was printed was a note on the evergreen wood fern, published in *The Bulletin of the Torrey Botanical Club* for October, 1878. His interest in these plants was never broken, and his book entitled "Our native ferns," published at Bloomington, Illinois, in 1881, has passed through six editions. He also became interested in the Hepaticæ, a little-known group of plants related to the mosses, and his "Descriptive catalogue of the North American Hepaticæ north of Mexico" was published in the second volume of the Bulletin of the Illinois State Laboratory of Natural History in 1883. In subsequent years he gave much attention to this group, and published a number of scientific contributions on the Hepaticæ, but afterwards he centered his attention on his first choice, the ferns. His published papers on plants of the latter group have been numerous, while the collections of both ferns and hepatics accumulated by him in the course of his studies and travels are very large and invaluable, being preserved with the rest of his herbarium at the New York Botanical Garden.

Dr. Underwood was appointed instructor in biology and geology in Syracuse University in 1883, and was promoted to a professorship in 1886, a position which he held until 1891, when he accepted the chair of botany at De Pauw University. This he occupied until 1895, at which time he was elected professor of biology in the Alabama Polytechnic Institute. During these years he gave much critical study to various groups of fungi, accumulated extensive collections of these plants, and published a number of original papers concerning them; his book "Moulds, mildews and mushrooms" was published in 1899. He came to Columbia as professor of botany in 1896—at the time the writer accepted the directorship of the New York Botanical Garden—and served the University in that capacity until his death, during which time he had charge of a considerable number of advanced students in cryptogamic botany and especially in ferns. His work with these students was done chiefly at the New York Botanical Garden, where the botanical library and herbarium of the University are kept. By virtue of his professorship in botany in Columbia University, Dr. Underwood was a member of the board of scientific directors of the New York Botanical Garden and served as chairman of the board since 1901. All of the collections of the Botanical Garden being available to the advanced students of the University for use in their investigations, he was indefatigable in building them up, especially those in cryptogamic botany, and their present efficient condition is largely due to his interest and activity.

In order to become more familiar with his chosen group of the ferns, Professor Underwood traveled widely in the United States and in the West Indies, visiting Cuba, Porto Rico and Jamaica, and making extensive and valuable collections. His last collecting trip was one to the island of Jamaica made in company with the writer in the autumn of 1906. In order to make the identification of his collections the more certain, he repeatedly visited Europe and studied in the museums and gardens at Kew, Paris, Berlin, Prague, and elsewhere. Practically all of his vacations were devoted either to field work or herbarium study, although he spent the last summer at his home in Connecticut, feeling the necessity of taking a complete rest. His repeated trips to Europe and his important and voluminous contributions to the literature of botany made him widely known in the Old World, and his knowledge of American ferns has doubtless never been equaled by that of any other student.

Professor Underwood was a member of many learned societies; he was vice-president, section of botany, of the American Association for the Advancement of Science in 1894, editor of the publications of the Torrey Botanical Club from 1898 to 1902, president of the Botanical Society of America in 1899–1900. He was most active at meetings of societies, participating in their discussions and serving continuously on committees. He was associated with the writer and other botanists from 1896 on, in the preparation of "North American flora," a work designed to give descriptions of all plants of North America, including the West Indies and Central America. Professor Underwood was really the first to suggest this work, the publication of which was rendered possible by the employment of a fund in charge of the Botanical Garden. At the time of his death, he was bending all his energies toward the completion, for this work, of the manuscript relating to the ferns.

Professor Underwood was married at Goshen, Connecticut, in 1881 to Miss Marie Annette Spurr, and is survived by his wife and one daughter, Helen Willoughby.

N. L. Britton

EDITORIAL COMMENT

Registration Returns

The enrolment of the University has for the first time in its history passed the five thousand mark, and a word or two in explanation of the large increase of this year seems appropriate. Owing to the increased requirements for admission to and advancement in the professional schools, a decline in the total number of students in attendance began in the fall of 1905. This gradual decrease of the past two years has now been more than overcome, and there are at present enrolled for the first half-year 4,041 students, as against 3,886 a year ago; including the summer session, the total is almost 5,200, showing the unusual increase of 550 over the attendance during the first half-year in 1906. Perhaps the most gratifying feature of this growth is found in the enrolment of the College, where, in spite of increased tuition fees, of higher standards for advancement, and of losses in the senior class due to the increasing number of students graduating in three years, there has been a slight gain even this year, the attendance having reached the high-water mark of 609. A word should also be said about the entering class in the schools of mines, engineering and chemistry, which, for reasons given below, is the largest class that has been admitted in their history. The school of architecture, the three non-professional graduate faculties, and Teachers College, also exhibit marked gains. The increased enrolment is reflected in the greater number of residents in Hartley and Livingston, and at the present rate of increase, the two residence halls should be entirely filled in another year.

The Schools of Mines, Engineering and Chemistry

The large increase this year in the number of students admitted with advanced standing to the second and third classes of the schools of mines, engineering and chemistry is the visible sign of the painstaking and organized work, on the part of the dean and the committees on admissions and program of studies, in the rearrangement of courses, and especially of the personal attention and aid given to each individual student in the proper selection of his courses and the judicious arrangement of his time.

The old arrangement of courses made it practically impossible for the graduate of another college, unless he had had considerable laboratory experience, to obtain a degree at Columbia without devoting at least three full years to the professional work, a fact which undoubtedly discouraged a number of desirable men. This was due primarily to the fact that the laboratory courses, especially those of the first two classes, which form so important a part of our course of study, were given but once a year. Now, with the uniform first-year curriculum, when both the important laboratory courses are repeated in the second half-year, and are given again, together with some of those of the second class, in the summer session and by the extension department, it is possible for a student to complete in one calendar year of residence the portions he may lack of the principal laboratory courses of the first two years, as well as some of the third-year laboratory work. In other words, it is now possible for the graduate of another college to complete the requirements for any one of our degrees in the schools of mines, engineering and chemistry in two and a half calendar years or less, depending upon his preparation, where in the past it would have been difficult to accomplish this in three years. The possibility of passing off entrance conditions by good work in the subject when taken in course will also be of service, not only in the direction just mentioned, but also as a stimulus to the student in beginning his work. The results of these innovations and of the personal efforts of the new administration are visible even at this early date and augur well for the future of the engineering schools.

College Admissions

It became evident after the June examinations that the freshman class in the College would be smaller than its immediate predecessor, since the number of candidates reported from the College Entrance Board was only 132, as compared with 160 last year. The proportion of these obtaining sufficient points for admission was, however, a little larger than in 1906, the number being 57 (of 132) as against 66 (of 160). After the September examinations 69 additional candidates were admitted, as against 67 in 1906, so that the total admitted by examination this year is 126, that for 1906 having been 133. The number admitted on Regents' academic diplomas is 21; in 1906 it was 22. There is a decrease of nearly fifty per cent. in the number admitted to the freshman class on certificate from other colleges,—12 and 22, respectively. This is mainly due to a smaller number of applications from students of the

City College, to be accounted for, perhaps, by the removal of that institution to its new site. It may be inferred that the decrease of applications in June was partly due to the same cause. The total number of freshmen admitted is accordingly 159, that for 1906 having been 177. Approximately three fifths are candidates for the A.B., two fifths for the B.S.

Of the 126 admitted by examination 84 are conditioned, 35 in more than three points. The average number of conditions (counting by divisions of the several subjects) is 3.42. The fact that only one third of those admitted—not an unusual proportion—were able to satisfy all requirements, seems to indicate disparity in the preparation given by the schools and the demands made by the College. Of the 84 conditioned, however, 20 offered less than 15 points, while 35 offered from one to five points in excess of the required number. The former could not escape being conditioned; the latter owe their conditions, in part at least, to the attempt to obtain credit beyond the entrance requirement, as fifteen of those admitted without conditions succeeded in doing.

These entrance conditions are not as serious as might appear, since practically all—except those incurred by failure to offer the subject, one sixth of the total—may be removed by the attainment of grade C in related courses pursued in the freshman year. With proper arrangement of programs in the case of such students, four fifths of the conditions imposed may be removed at the end of the first half-year. As it takes only the minimum of satisfactory performance to accomplish this, the condition may often serve as a salutary stimulus. If investigation shows that an undue proportion fail to meet this moderate requirement, it would seem that the courses, as well as the examinations, are disparate to the average student's preparation.

The number admitted to advanced standing is 37, as against 32 in 1906 and 24 in 1905. Of these, 25 were admitted to the sophomore class, 12 to the upper classes. Twenty-six are candidates for the A.B., 11 for the B.S. Three transferred from the schools of engineering; twelve were admitted from five other colleges in New York City, four from colleges elsewhere in New York state. The remainder came from institutions in fourteen states and two foreign countries. Including those admitted to the freshman class, forty-nine men entered on credentials from thirty-one colleges. The number admitted as non-matriculated students is 46, as against 33 last year. The grand total of new students admitted is the same as last year, 242.

Advanced Standing and Options in the Professional Schools

The fact, noted above, that two thirds of the number admitted to advanced standing entered the sophomore class is explained by the intention, frequently expressed, to take advantage of the options in the professional schools. Except in the case of men intending to enter the law school, such students must spend one year more in collegiate work than is required of those who begin their course in Columbia College. Some had not understood that 72 points must be made *in Columbia College,* but only two or three withdrew their applications on learning of this requirement. Not more than one fifth of the total number applying for admission to advanced standing failed ultimately to qualify. It is evident that the peculiar advantages offered by Columbia for combining collegiate and professional study meet an important demand,—a demand more widespread than the knowledge of the opportunity, as the inquiries of applicants show.

By the end of this year it will be possible to make some estimate of the effect upon the College of the 72-point option in the medical school and the schools of mines, engineering and chemistry. Objection is sometimes heard that the College is assuming the function of trainer for the professional courses; that a constantly decreasing number of men are getting a four-year, or even a three-year, course; that while the discipline of prescribed college courses, with a few elementary electives, is better than nothing for the man who might otherwise enter directly upon his professional course, some are tempted to shorten their college course unnecessarily, never reaching, so to speak, the larger, riper fruit at the top of the tree.

Only an investigation of typical classes in College and the professional schools can determine the aggregate of loss and gain, respectively. The former cannot be assumed; the latter is self-evident. Meanwhile it may not be amiss to recommend three years in the College to the student who can postpone the beginning of his professional course. It should not be understood, moreover, that the student must discontinue college courses beyond the 72 points, in order to take advantage of the option. As a matter of fact he may (unless he has entered the medical school), and usually does, take college work in his third year, having anticipated, as college electives, certain first-year professional courses. With a satisfactory system of advisers in operation, much can be done to aid the student in this respect.

Annual Reports 1906–1907

The stout volume containing the reports, for 1906–07, of the President and the other chief administrative officers is, as usual, a document which deserves, and will surely receive, the most careful scrutiny from all officers and friends of the University. It contains not only statistics which we must all examine if we would gain at first hand a correct idea of the exact status of affairs in our little world, not only summaries and correlations of facts on all important lines of university activity during the past year, not only the diagnosis of our chronic and acute ailments (financial and other), but much wise prognosis of the changes that may be expected in the immediate future. The prevailing tone of the reports is of open-mindedness and intelligent activity: our administrative officers are, to a marked and increasing degree, freeing themselves from the tyranny of routine and convention, and setting themselves to the difficult task of looking educational facts squarely in the face, and determining what they are, and on what basis they can best be treated. The dean of the school of law, for example, states that his faculty is considering with care figures that "show the continued presence in the school of a considerable body of men who are wholly unfitted for its work, and who, by their very presence, lower the tone of the entire student body," and the dean of the faculty of applied science analyzes the causes which have led to the presence of weak students in the schools that come under his charge, and describes the wise measures which have been adopted "to prevent the recurrence of the same situation among the members of the entering classes." The old *laissez-faire* systems of instruction and administration throughout the country are indeed breaking up rapidly, and nowhere is this more evident than at Columbia. The president's own report explains with much clearness and force the present financial status of the University, and comments briefly, but incisively, on the new arrangements for Commencement, on the success of the University's policy in regard to the summer session, on the recent reorganization of the College faculty, on the need of change in conventional methods of instruction, on the increasing specialization of administrative work and its beneficial results to the teaching body, and on the effect of modern methods of university administration in the United States on the career of the scholar and the teacher. His words on this last topic we quote in full in order to give them a wider currency:

During the past year or two a number of writers in the public press have expressed the opinion that in some way or other the university career is unfavorably affected by the methods of university administration that have been developed in the United States. The contrary is the case, at least so far as those institutions are concerned which may properly be taken as representative of the best that American development has yet reached. In those institutions the scholar of capacity has nothing to fear save the burden of the new obligations which increasing usefulness and expanding reputation bring to him. He is unrestricted in his liberty to teach what he likes and as he likes. He chooses, either directly or indirectly, his own subordinates and his own associates. He formulates, so far as he can impress his views and convictions upon his colleagues, the educational policies of the institution that he serves. As our civilization grows older and more regard is paid to those who know, he finds himself in an increasingly important and responsible position toward the public. Such books and apparatus as he requires for his personal studies and researches are provided not only liberally, but lavishly, to the limit of the funds at the disposal of the university corporation, and sometimes even beyond that limit. There never has been a time when the academic career was so attractive as it is today, and that hundreds of the best and most ambitious young men in America have chosen it and are choosing it, the rolls of the universities of the land clearly prove.

Associates

The new grade of "associate," standing in the hierarchic order of university titles between "adjunct professor" and "instructor," seems to meet a want which, if not yet very extensive, is still very real. The professional faculties, at Columbia as at other American universities, have always depended for a part at least of their regular instruction upon persons who are more or less actively engaged in the practice of their several professions. If these persons are able and willing to give to the University the minimum amount of teaching which is commonly given by professors, and to take their share of the committee work and administrative work which professors are expected to do, they may not inappropriately receive the professorial title. If, however, they are able or willing to give only a more limited amount of instruction and can or will undertake no deliberative or administrative service, the professorial title seems inappropriate. It may, nevertheless, be highly desirable that such persons, if possessed of expert knowledge in a special field and endowed with the ability to communicate knowledge to others, should give to the University such service as they are able to give for so long a time as they are able to give it. Analogous cases have arisen in the non-professional graduate schools—cases in which a limited amount of instruction in a special field is given year after year by a competent person whose interests lie primarily and chiefly outside of the University. It is not unlikely that in the future the University may find it expedient to make increasing use of the expert knowledge and scholarship of the great community in which it is situated. To find a proper title for such "part-time" officers of instruction is not a question of formal accuracy only: men of mature age and of established reputation in their special fields may be deterred from giving instruction by the lack of an appropriate designation or may be attracted by a title that has a certain dignity. The title of "lecturer," which from this point of view is not unavailable, is limited by statutory definition to cases in which the connection with the University is temporary or the service discontinuous. It may answer for a first appointment, but is unsuitable for the case of reappointment. The titles "assistant," "instructor" and "tutor" are not appropriate in the case of mature persons who are masters of their special fields. Moreover the two latter titles are traditionally associated with work of collegiate rather than of university grade. The title of associate seems to be free from all these objections, and to be fairly descriptive of the non-academic person who is giving a part of his time and energy to academic work.

The Relations of Technical Education to Industry

The education of men for the conduct of commercial affairs on a large scale in those complicated forms properly called "the industries," and more especially the manufacturing industries, is a university problem of great magnitude and a question of national importance. Because of the diversity of the industries themselves and the still greater diversity of occupations open to men in accordance with the modern division of labor, it is not at all astonishing that the courses in engineering now offered as a technical preparation for this particular sort of life work should frequently be criticized. In his article on "The relations of technical education to industry," Mr. C. B. Going, editor of the *Engineering Magazine*, presents an interesting discussion of the educational situation in this regard.

Any scheme for technical education must follow more or less closely the lines along which the profession or industry itself developed and just as experience in the designing and manufacturing of machinery has proved to be the best preparation for the management of the industries dependent upon the operation of machinery, so the course of instruction in mechanical engineering seems to be the best preparation for the general manufacturing industries. The profession of mechanical engineering, to which the paper most directly applies, lies between the trades on one hand and the exact sciences on the other, but it is most emphatically not a mixture of the two extremes, but a new compound. Any course of study consisting merely of a mixture of a certain number of subjects of both kinds fails to recognize this fact and must inevitably fail in its purpose. Courses on these various subjects are essential, but each must be treated not from the viewpoint of the specialist, but rather with due consideration of the part that the particular subject plays in the larger scheme of professional practice. Each subject should be taught in the light of the understanding that it can play only a small part in the training of the engineer for the economic production of any mineral, metal, manufactured article, structure, machine, power-plant or factory. The maintenance of a careful balance of subjects entering into the complete course of instruction requires constant watchfulness of conditions entirely outside of the university, together with a curbing or rather guiding of that "passion for thoroughness" which places every instructor in the position of a destroyer of the desired equilibrium within the engineering school. Much of what Mr. Going advocates is now in a fair way towards accomplishment at Columbia, but it would be folly to maintain that the fundamental training in mechanical engineering is not in need of being supplemented by even more instruction of a practical nature—partly in shop and factory, and partly in class—imparted by successful specialists, who can bring to the students the very last note from their respective fields of activity.

The Non-Technical Lectures

The very large attendance at the Wednesday afternoon lectures and the unflagging interest shown by the hearers have furnished complete proof—if any was needed—of the wisdom and skill with which the course was planned, and no feature has been more gratifying than the presence of so many members of the faculties. The six addresses already given at the time of writing these paragraphs have shown, each in a different way, yet all in most striking fashion, the interdependence of sciences which of late years have seemed, particularly to the layman, to be going such different ways.

For those professional men whose chosen work leads them far away from the field covered by the lecturer of the day, no less than for the general public, it is as though the speaker had newly returned laden with a rich store of experiences, from a foreign land which they too had visited in bygone years, but where development has been so rapid, and changes so many, that the very face of the earth has assumed a new aspect, and the old familiar landmarks are but faintly seen. It is generally accepted as inevitable that this should be so in regard to the natural sciences; that it is not less true of the historical sciences will certainly be made plain in due time, and the methods of linguistic and archeological investigation will show a change, hardly less striking, from those in vogue fifty years ago. Such a "round-up" is in every way an enlightenment and an inspiration.

Higher Education in South America

The importance of Professor Shepherd's mission to South America is foreshadowed in the interesting article which he contributes to this number of the QUARTERLY. As the duly accredited agent of the International Bureau of the American Republics and of Columbia University, he has visited during his leave of absence all the important centers of political, social and educational influence among the states of South America, carrying his message of good will and sympathetic interest. His easy command of their languages and official credentials caused his reception by leading men to be cordial and universal. Every facility, social and formal, was afforded to him, and his notes, therefore, are more comprehensive and reliable than those of any other traveller who has so far sought to investigate the general conditions of South American life. The fuller results are to be set forth in the Hewitt lectures for the coming year, and the volume containing them will be of standard value. It must be a source of solid satisfaction that a member of this University, trained in its schools from the beginning and saturated with its spirit, should be the first to reap so rich a harvest of accurate knowledge for the stimulus and guidance of his countrymen.

The task of knitting into a closer union the two portions of this continent is difficult but not impossible. Little effective work in that direction is now or further possible without commercial harmony and the expansion of mercantile relations. To this end there must be a real and intimate acquaintance of the two race elements, one with the other; and there is no such solvent of ignorance as travel, or failing that the publication and reading of dispassionate, kindly books of travel by trained observers. Of these we cannot have too many and the prospect of the Hewitt lectures is very attractive. Almost if not quite as important is the interchange of students. Our South American merchants could make wise and fruitful investments by founding travelling fellowships in Columbia which would enable men trained by Professor Shepherd to reside for considerable periods at South American seats of learning, or *vice versâ* which would bring some of the best students from the Latin American states to enjoy for a few years the benefits of residence in the American metropolis under the guidance and tutelage of Columbia instructors. Almost alone among American universities we have an expert in the history and institutions of the sister continent. It is a matter of the first importance that his services should reach the largest possible number both north and south. Nothing probably could better further the cause of international peace and good will, momentarily at least, than a considerable attendance of American delegates at the Santiago Congress of 1908. We should have a representative, of course; and so, in our opinion, should our powerful scientific associations of national character. The praiseworthy efforts of South American scholars to keep in the movement ought to be recognized by those of North America.

The Oxford and Cambridge Review

The appearance of The Oxford and Cambridge Review is a noteworthy event, and a few words of comment on the initial number do not seem inappropriate. It means that the two haughty universities, united by detraction and threat, are driven to bay. To be sneered at as medieval derelicts might perhaps be ignored with dignity; to be legislated into "modernism" is a risk too actual to be endured passively. The new joint Review is accordingly less a magazine than a manifesto,—a wriggling, to put it profanely, of the book-worm which has turned. For the leading article, R. W. Livingstone's *apologia* for *alma mater,* is a defence of *book*-learning, of the study of books *which are books,* as Charles Lamb says. Such are literature, history, philosophy, the *humanities,* the study of Man; and the proper study of boy-kind is Man. The effects of it are, in the large sense, "political virtues," more especially "quickness of judgment and toleration." These are the shaping mould for the metal of experience; and the mould, though admittedly useless by itself, is the prior need. English liberal education aims to fulfil this universal need, believing that only after its fulfilment is a man ready for the study of things, which is science, or of practical affairs, whether professional or commercial. And on these premises, another writer, "A friend of 'true scientific method,'" casts back Sir Norman Lockyer's sneer that "the scientific spirit" is wanting in English universities. The boot is on the other foot: ". . . there is the greatest danger lest, now that the claims of science are being recognized, the scientific men themselves shall become dogmatists, and shall expel from the regions of thought all they do not know."

Except for a panegyric by Professor E. A. Gardner of the British School at Athens, and a protest by the master of University College against a threatened reorganization of the University of Dublin which would mean an effective surrender to Catholic control, other academic themes discussed are mainly intramural in interest. The undergraduate's interest in religion is affirmed; his interest in politics commended; his lack of 'varsity spirit deplored. The Hon. Mrs. Bertrand Russell holds up as a pattern to be copied, with due modifications, American coeducation; J. L. Myers pleads for a "Bureau of biometry" as a step towards the science of "eugenics"; Archdeacon Cunningham deprecates the neglect of the "poll-man," or candidate for the "ordinary" degree; R. F. Cholmeley urges organization of secondary schoolmasters: the Rev. F. J. Foakes-Jackson discusses the question of athleticism. The reverend gentleman laments the "good old days" of sport for the sport's sake before "professionalism" and over-organization spoiled things; yet he hedges at thought of a college "mollycoddled": ". . . imagine," he says, "an Oxford or Cambridge full of mild effeminate youths intent on nothing but succeeding in examinations."

As reliefs to shop-talk, A. C. Benson has a kind word for "Introspective literature"—perhaps a subtle apology for one characteristic type of Oxford-made men; A. W. Verrall emphasizes some anticipations of Christian ideals in the age and works of Statius, so justifying Dante against Gibbon; and, as a special drawing-card, there is printed for the first time a paper by John Stuart Mill on "Social freedom," pragmatic in tendency.

The new review is distinctly to be reckoned with. It speaks for an academic spirit sturdily conservative in ideals, yet healthily progressive in practical methods, by no means deaf to reasonable criticism, but defiant of partisan or *doctrinaire* reformers. When Oxford and Cambridge stoop together to reason, they would seem in a fair way of stooping to conquer.

New Board of Editors

At the annual meeting of the board of editors of the QUARTERLY, held at the Columbia University Club on October 10, the following editors were elected for the academic year 1907–1908: Rudolf Tombo, Jr., managing editor; William T. Brewster, Barnard College; Gary N. Calkins, pure science; James H. Canfield, library; George R. Carpenter, Columbia College; W. H. Carpenter, philosophy; Virgil H. Coblentz, pharmacy; Frederick P. Keppel, administration; George W. Kirchwey, law; Frederic S. Lee, medicine; J. L. R. Morgan, applied science; John B. Pine, board of trustees; Henry R. Seager, political science; Frank D. Sherman, fine arts; Munroe Smith, political science; Herbert T. Wade, alumni; and F. J. E. Woodbridge, philosophy.

It was decided by the editors to devote the December number largely to the schools of mines, engineering and chemistry, while the issue of March, 1908, is to deal primarily with the school of law.

THE UNIVERSITY

The President's Address of Welcome

It is the agreeable duty of the president of the University to offer hearty greeting and cordial welcome to his colleagues of the trustees and the faculties and to the students of the University, old and new, at this opening of a new year of academic life. Columbia has grown to be an institution of such vast proportions and includes in its membership each year so many thousand persons of diverse interests, drawn from all parts of the world, that it is only occasionally and in gatherings like this, that representatives of every part of the University are gathered together. It is fitting that from this gathering we should carry away new feelings of fellowship and good cheer, a new sense of responsibility for whatever talents and obligations may be ours, and a new joy in attacking the problems that lie at our hands.

With particular pleasure we all join in welcoming back to his accustomed post our distinguished colleague, the dean of the faculty of political science, who has closed a year of memorable public and intellectual service among the German people. As the first occupant of the Roosevelt professorship of American history and institutions in the University of Berlin, he has established a new and lofty tradition of American scholarship and given new and splendid proof of the strong feelings of intellectual kinship and sympathy which bind together the scholars of Germany and America. We welcome also, with all possible cordiality, the dean of the faculty of law in the University of Breslau, who, as incumbent for the year of the Kaiser Wilhelm professorship of German history and institutions in Columbia University, joins our ranks as colleague and friend. For Dr. Leonhard we wish a year full of enjoyment and abounding in satisfaction with service done and friendships formed.

Although it was without design, it is not wholly without significance that both Professor Burgess in Germany and Professor Leonhard in America expound and interpret some of the deepest and subtlest phases of the institutional life of their respective nations. To the student members of the University in particular, I venture to commend for the coming year the study, serious and intent, of the institutional life of the American people. We are surrounded on every side by economic forces and movements of unparalleled magnitude and complexity. In some way the problems raised by these new forces and movements must be solved without overturning the work of the ages upon which, as foundation, our nation and every civilized nation rests. We must not attempt to remedy economic wrong by committing political error. We must have care that we understand clearly what the past lessons of our history teach and what that past has established beyond peradventure. This done, the men of today can go forward with confidence to the solution of the difficult economic problems by which they are faced. Without this knowledge as a preparation we shall be likely to find ourselves in a political and economic morass from which extrication will be difficult indeed, and continuance in which will mean only prolonged suffering and disaster for all classes of the community.

The lessons of the nation's institutional life are just now the most important lessons that the youth of the next generation have to learn. I commend earnestly to you all those studies, in which this University is so abundantly rich, that contribute to this end.

* * *

President's Report

The President's report is treated editorially on another page. The following figures taken from this document explain the financial conditions and operations of the University for the year ending June 30, 1907:

(The figures for real estate given in the following tables are the assessed valuations on the records of the Bureau of Taxes and Assessments in the City of New York.)

Property owned, June 30, 1907:	Columbia University	Barnard College	Teachers College*	College of Pharmacy	Totals
1. Occupied for Educational Purposes	$7,850,000 00	$525,000 00	$1,795,000 00	$125,000 00	$10,295,000 00
2. Held for Investment	18,662,801 00	726,419 59	1,093,039 85	—	20,482,260 44
Total	$26,512,801 00	$1,251,419 59	$2,888,039 85	$125,000 00	$30,777,260 44
Outstanding Debt	3,267,000 00	37,417 61	$1,470 89	90,000 00	3,395,888 50
Annual Budget for 1907–08:					
1. For Educational Administration and Instruction	$1,231,035 73†	$113,875 00	$418,939 00	$28,104 00	$1,791,953 73
2. For Interest on Debt	87,930 00	—	—	4,050 00	91,980 00
Total	$1,318,965 73	$113,875 00	$418,939 00	$32,154 00	$1,883,933 73
Income for 1906–07:					
From Fees of Students	$507,714 25	$60,037 49	$321,215 40	$37,582 09	$926,549 23
From Rents	417,333 32	—	—	—	417,333 32
From Interest	199,447 98	33,773 49	28,048 28	—	261,269 75
From Miscellaneous Sources	135,255 45	14,935 71	12,030 86	—	162,222 02
Total	$1,259,751 00	$108,746 69	$361,294 54	$37,582 09	$1,767,374 32

*Including cost and income of the Horace Mann School for 1906-07.

†This includes by duplication the amount paid in salaries to officers of instruction in Barnard College, $77,850.

The sum total of the gifts in money received during the year by the several corporations included in the University is as follows:

	Columbia University	Barnard College	Teachers College	College of Pharmacy	Totals
To Establish Trust Funds...	$107,751 72	$105,000 00	$402,150 25	—	$614,901 97
For Buildings and Grounds..	273,702 00	110,000 00	234,900 00	—	618,602 00
For Payment of Debt..........	—	—	—	—	—
For Current Interest on the Debt..............................	—	—	—	—	—
For Immediate Use.............	77,616 96	21,724 40	27,745 47	—	127,086 83
	$459,070 68	$236,724 40	$664,795 72		$1,360,590 80

The grand total of gifts in money to the several corporations included in the University for each of the last six years is as follows:

1901–02	$1,082,581.02
1902–03	1,721,895.06
1903–04	1,783,138.18
1904–05	1,960,247.87
1905–06	1,299,909.78
1906–07	1,360,590.80
Total	$9,208,362.71

* * *

Financial Problems

The following paragraphs in regard to the financial problems of the University deserve serious consideration at the hands of the alumni:

From the report of the treasurer, it will be seen that for the year ending June 30, 1907, the deficiency in the cost of maintaining the educational work of the University reached the large sum of $58,109.09. This sum is exclusive of the interest charge of $88,049.81. Naturally, this result is ground for grave concern. It points once more and with new emphasis to the undeniable fact that Columbia University is not sufficiently endowed to carry on the work which has been laid upon it. The cost of instruction is constantly increasing and the number of students grows steadily larger. As was shown in detail in the last annual report, the salaries paid to the teaching staff are far from what they should be. Much that is urgently demanded is either not undertaken at all or is insufficiently provided for. It is within the mark to say that an additional free income of $100,000 a year is an absolute necessity if the University is not to restrict its educational opportunities. No effort must be spared to provide this sum, for without it we must face grave embarrassment in the immediate future.

During the year the finance committee and the trustees gave prolonged consideration to the question of the corporate debt. It had been confidently hoped that this debt, amounting approximately to $3,000,000, which had been necessarily and wisely incurred in the

RUDOLF LEONHARD

KAISER WILHELM PROFESSOR, 1907–08

purchase and development of the site on Morningside Heights, would be met by gifts from those who appreciated what the University had done and is doing. Inasmuch, however, as no considerable amounts applicable to the reduction of the debt had been received by the trustees, it became necessary to determine how the debt could be extinguished by the use of the existing resources of the corporation. After studying the question in all its aspects, the Trustees, on June 3, 1907, adopted the following resolution:

Resolved, That the Finance Committee be and is hereby requested to take the necessary measures to provide for the payment of the outstanding debt by an issue of bonds to an amount not exceeding $3,000,000 to bear interest at not more than 4 per cent. per annum, the principal to be finally payable on or before July 1, 1940, and to be secured by a mortgage upon the Upper Estate or any part thereof, with the obligation that on July 1, 1911, and annually thereafter, the College will, out of the rents of the mortgaged property, pay the principal in installments of $100,000.

In connection with the consideration of this resolution, a forecast of the financial condition of the corporation was made which indicates that, by confining the expenditures for education within the limits at present fixed, the trustees will be able for the year 1907–08 and thereafter, to meet the annual interest on the debt without borrowing, and after 1910–11 to reduce the principal sum of the debt by $100,000 each year. By the operation of this policy, the debt will be extinguished in the year 1940, and each year after 1911 the sum of $4,000 now paid annually in interest will be set free for educational use. The trustees have therefore themselves assumed this heavy burden of debt, but, in order to extinguish the debt, they must have aid in carrying on the educational work of the University.

* * *

Professor Leonhard and his Opening Lecture

The purpose of the exchange of professors between Columbia and the Prussian universities is the progressive interpretation of German civilization to Americans and of American civilization to Germans. The first incumbent of the Roosevelt professorship in the University of Berlin, Professor Burgess, lectured in 1906–07 at Berlin, at Bonn and at Leipzig on American constitutional history; the second, President Hadley of Yale University, is now lecturing at Berlin on certain phases of American economic development. The first occupant of the Kaiser Wilhelm professorship in Columbia University, Professor Hermann Schumacher, of the University of Bonn, lectured last winter on Germany's industrial development; the second, Professor Rudolf Leonhard of the University of Breslau, is lecturing this winter upon Roman private law and upon the social tendencies of German law and their significance for civilization.

Professor Leonhard is a worthy representative of German legal science, accredited alike by a distinguished academic career and by important contributions to German legal literature. Born at Breslau in 1851, his university studies (interrupted by active service in the Franco-German war) were prosecuted at the universities of Heidelberg, Berlin and Giessen. After practicing law for a few years, he qualified in 1878 as *Privatdozent* in the University of Berlin. In 1880 he was appointed extraordinary professor in Göttingen University; and in 1884 he became ordinary professor in the University of Halle. In 1885 he accepted a call to Marburg, where he remained for ten years. In Marburg the distinguished historian, Heinrich von Sybel, had established a school (*Institut*) for the training of archivists or keepers of public records. At his suggestion Professor Leonhard was appointed chairman of the examining board which determines the proficiency of candidates for this branch of the Prussian civil service. In 1895 Professor Leonhard was called to Breslau, where he has since remained. His success as a teacher of law has been evidenced by the large number of students who have attended his lectures. The respect and regard of his associates have been demonstrated by his election to the rectorate of the University of Marburg for the year 1891–92; to the same position at Breslau for the year 1902–03; and to the deanship of the faculty of law at Breslau for the year 1906–07.

In his academic career Professor Leonhard has taken an active part in the movement for the more general and more thorough study of cases. As a result of this movement, attendance on case-courses (*Practica*) and the submission of written discussions of cases have become, during the past decade, obligatory parts of the legal curriculum in the Prussian universities. In 1887 he published a volume of selected cases for the comparative study of Roman and of Prussian law.

In his numerous contributions to German legal literature, Professor Leonhard has followed and has sensibly furthered the reaction, in which Jhering of Göttingen was perhaps the most conspicuous figure, toward more concrete and more practical aims and methods. This tendency found conspicuous expression in his well-known book on "Mistake in void contracts" (*Irrtum bei nichtigen Verträgen*), which was published in 1882–83, and has recently appeared in a second revised edition. Without attempting to give a complete list of his other writings, it may be noted that he took an active part in the criticism of the German civil code in its successive stages; that he contributed to one of the leading commentaries on the completed code (Guttentag's *Sammlung*) the "General part"; and that he completed and prepared for the press Eck's "Lectures on the code" (*Vorträge über das Recht des bürgerlichen Gesetzbuchs*), which were published in 1903–04 and which have been translated into French by Professor Saleilles.

Professor Leonhard is to be numbered among those who regard jurisprudence as a universal science, and who are striving to promote a more effective cooperation among the jurists of all civilized nations. Speaking French and Italian fluently, he has participated in international congresses, and is an honored member of the Italian *Istituto di storia del diritto Romano*. In the serial *Studien zur Erläuterung des bürgerlichen Rechts,* which he has edited for several years, it has been his aim to secure the cooperation of other than German writers; and in 1906 a special number of these *Studies* was devoted to "*Stimmen des Auslandes über die Zukunft der Rechtswissenschaft.*"

In his inaugural lecture at Columbia, delivered to a large audience in Earl Hall at the opening exercises of the Law School, September 27, Professor Leonhard spoke of the importance of method; of the great service rendered to civilization by the natural-law school; of the fundamental defect of the natural-law theory; of the importance and necessity of the historical method, and of the errors of the German historical school. The greater part of the lecture was devoted to the last topic; and among the errors pointed out were over-valuation of the remote past, a tendency to ignore the development of law in the middle ages, and a tendency to make legal history an independent discipline, hardly distinguishable from *Kulturgeschichte,* instead of an ancillary legal discipline. One sentence in his lecture might well be inscribed over the portal of every faculty room in every university: "We must distinguish between the things which a professor ought to know and the things which a student should be required to learn."

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Since the Press became, on the first of May, its own publisher, with the Macmillan Co. continued as sales agents only, it has issued

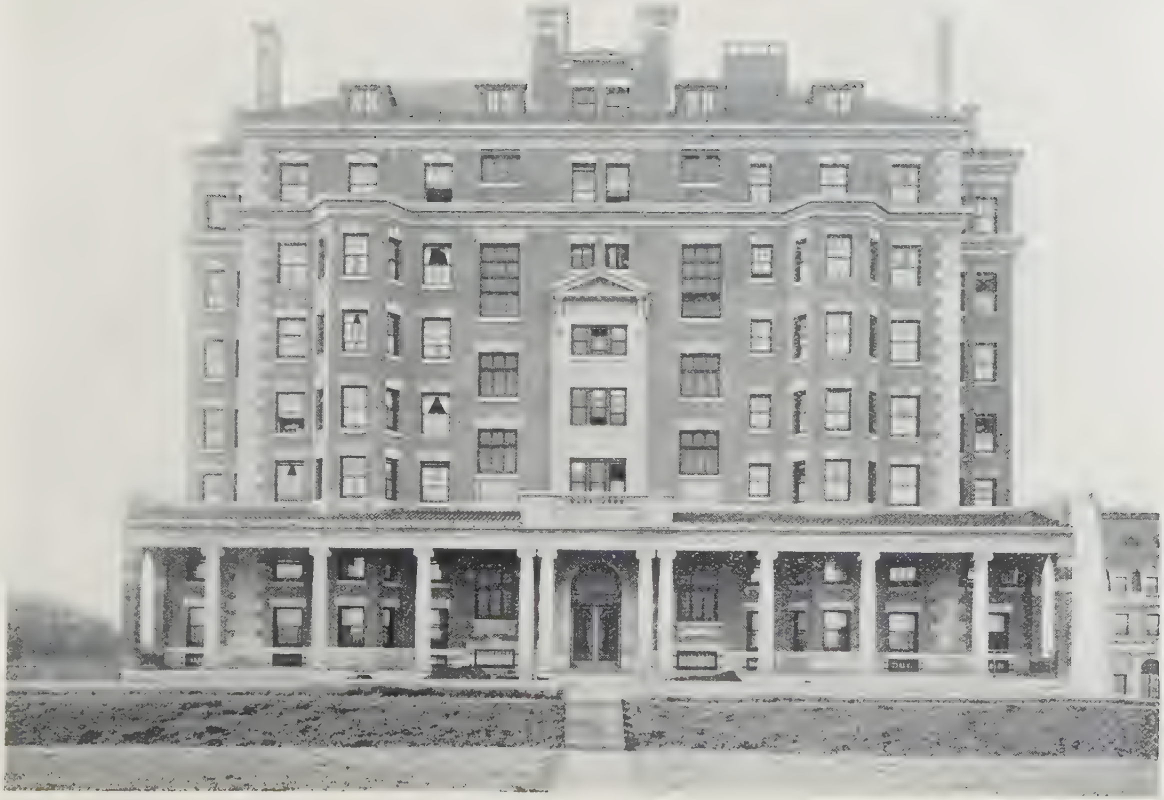
Press Activities

the notable volume by Albert Shaw, editor of the *Review of Reviews,* "Political problems of American development," made up of the lectures delivered as the initial course upon the new Blumenthal foundation. Two volumes have also been added to the Oriental Studies, edited by the department of Oriental languages, "Sidon, a study in Oriental history" by Frederick C. Eiselen, and the "History of the City of Gaza from the earliest times to the present day" by Martin A. Meyer. One number has been added to the Germanic Studies, under the editorship of the Germanic department, "The nature sense in the writings of Ludwig Tieck" by George H. Danton.

There are in the press at the present time, to appear shortly, "The ancient history of China to the end of the Chóu dynasty" by Professor Friedrich Hirth of this University; "The history of transportation in the eastern cotton belt" by Professor Ulrich B. Phillips of the University of Wisconsin; a new volume in the Studies in Comparative Literature, "The Oriental tale in England" by Martha P. Conant; two additional volumes in the Oriental Studies, "The Bustan al-Ukul, or the Garden of Wisdom" by David Levine, and "Parody in Jewish literature" by Israel Davidson; the initial number of the new Contributions to Oriental History and Philology, "Sumerian hymns from Cuneiform texts in the British Museum" by Frederick A. Vanderburgh; and three numbers of the new series of Studies in English, "Sir Walter Scott as a critic of literature" by Margaret Ball, "The American novel" by Lillie D. Loshe, and "Studies in New England transcendentalism" by Harold C. Goddard.

Arrangements have been made for a later date during the year for the publication of President Woodrow Wilson's Blumenthal lectures on "Party government in the United States"; Professor William P. Trent's Hewitt lectures of 1905, which will be made in their book form an exhaustive study of Daniel Defoe; and Professor Adolphe Cohn's Hewitt lectures of 1906 on "Republican France, its political and economic problems."

The volumes of the various series of Columbia University lectures, Jesup, Hewitt, Blumenthal, and Carpentier, represented now by Professor John B. Clark's Hewitt lectures of 1904 on "The problem of monopoly," and Dr. Albert Shaw's "Political problems of American development," are to form in the future, on account of the personality of their authors and the nature of their subjects, a most valuable part of the output of the Press, as they are of the University itself. In



DELTA PHI

BROOKS HALL
FROM THE NORTH

addition to the lectures in these courses already delivered, which include, beside those mentioned, Professor Crampton's Hewitt lectures of 1907 on the "Doctrine of evolution," there are to be delivered during the present academic year the Blumenthal lectures by Professor Jenks on the "Fundamental principles of politics in the United States," and by Samuel W. McCall on the "Business of Congress"; the Carpentier lectures by Professor John C. Gray on the "Nature and sources of law"; the Hewitt lectures by Professor W. R. Shepherd on the "Republics of South America"; and the Jesup lectures by Dr. F. S. Meara on the "Scientific advance in modern medicine." All of these are to form subsequent volumes of the Press.

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Hartley and Livingston

In the December, 1905, issue of the QUARTERLY an analysis of the occupancy of Hartley and Livingston Halls was given as of November 1 of that year. At that time 172 rooms in Hartley and 170 rooms in Livingston, giving a total of 342 rooms, had been rented to 296 students. During the present academic year, considerable progress has been made towards filling the halls, the statistics for November 1, 1907, showing 500 rooms in the two dormitories rented to 443 students, who are distributed by classes as follows:

School	Hartley	Livingston	Total
Columbia College	39	27	66
Mines, Engineering and Chemistry	33	48	81
Architecture	13	15	28
Law	30	63	93
Medicine	6	6	12
Political Science, Philosophy and Pure Science	44	37	81
Teachers College	27	11	38
Pharmacy	6	5	11
Officers	13	20	33
Total	211	232	443

Brooks Hall

Brooks Hall, the new hall of residence of Barnard College, opened on Monday, September 23. It is on the corner of Broadway and One hundred and sixteenth street, and is a brick, limestone, and terra-cotta building of a style of architecture in accordance with the general plan of academic buildings of the University. It is designed to have two wings facing the main building of Barnard College and enclosing tennis courts, basket-ball field, and open green. The building will accomodate ninety students if every room is taken as a single room; at present there are sixty residents, graduate and undergraduate students of the University. These students are drawn not only from a distance, but from places near the city, a fact which seems to show that the long daily journeys back and forth are recognized as an evil. The regulation of the details of resident life is in the hands of the student committee, composed of a representative elected for each floor, and the work of this committee is supervised by a hall council, made up of the chairman of the committee, a member of the faculty of Barnard College, and the hall mistress.

* * *

Report of Committee on Employment for Students

The year 1906–07 was the twelfth of the committee's existence. During these twelve years the recorded earnings of students applying for aid have increased from $2,411 in 1895 to $111,161.28 in 1906–07. There are now 749 students registered with the committee as applicants for work, as against 67 in 1895. The aggregate earnings for 1905–06 were $104,240.39, while in 1906–07 they were $111,161.28, a total advance of $6,920.89. The amount earned with the aid of the committee was $30,645.33; without its aid, $80,515.95. It is to be regretted that out of the 749 students registered with the committee only 278 reported their earnings. Obviously, if reports had been received from the whole number of applicants, the amount reported earned would be vastly more. The plan of having the students report their earnings has added to the efficiency of the committee in no inconsiderable degree and is worth the support asked for it. Three hundred and eighty-five applications from employers were received; 76 of these positions were unsecured for various reasons, such as undesirability, withdrawal of the position, and procrastination on the part of the candidate, as against 106 lost last year. Three hundred and three positions were secured, an increase of 87 over last year.

As a whole the total increase of earnings on the part of the students is extremely gratifying; the fact that there is an apparent decrease in the amount earned with the aid of the committee is more likely due to the failure of students to report their earnings than to existence of an actual decrease. During the year four different men have held the position of secretary and consequently there has not been the smoothness in the work that comes from one single head. On the other hand, these several men have all introduced new ideas that are likely to bring about beneficial results in the immediate future.

The President's Reception

The annual reception given by the President of the University to the newly appointed professors took place on Saturday, October fifth. President and Mrs. Butler received the guests, who numbered six or seven hundred. The new members of the faculties are:

Nathan Abbott, A.B., LL.B., professor of law; Simon Baruch, M.D., professor of hydrotherapy; Porter F. Chambers, M.D., clinical professor of gynecology; Harry A. Cushing, Ph.D., LL.B., professor of law; Francis Huber, B.S., M.D., professor of clinical medicine; K. G. Rudolf Leonhard, J.U.D., Kaiser Wilhelm professor of German history and institutions, 1907–08; Samuel McCune Lindsay, Ph.D., professor of social legislation; Andrew J. McCosh, M.D., LL.D., professor of clinical surgery; Dickinson S. Miller, Ph.D., professor of philosophy; Pearce Bailey, A.M., M.D., adjunct professor of neurology; Charles A. Beard, Ph.D., adjunct professor of politics; William Campbell, Ph.D., Sc.D., adjunct professor of metallography; William K. Draper, A.B., M.D., adjunct professor of clinical medicine; Grace A. Hubbard, A.M., adjunct professor of English; Daniel Jordan, B.S., Pd.B., adjunct professor of the Romance languages and literatures; George Philip Krapp, Ph.D., adjunct professor of English; William W. Lawrence, Ph.D., adjunct professor of English; George R. Lockwood, A.B., M.D., adjunct professor of clinical medicine; James Howard McGregor, Ph.D., adjunct professor of zoology; William P. Montague, Ph.D., adjunct professor of philosophy; Van Horne Norrie, A.B., M.D., adjunct professor of clinical medicine; Arthur F. J. Remy, Ph.D., adjunct professor of Germanic philology; George D. Strayer, Ph.D., adjunct professor of elementary education; Mrs. Vladimir G. Simkhovitch, adjunct professor of social economy; Henry Suzzallo, Ph.D., adjunct professor of elementary education; James D. Voorhees, A.M., M.D., adjunct professor of obstetrics; Mabel F. Weeks, A.B., adjunct professor of English; Royal Whitman, M.D., adjunct professor of orthopedic surgery.

The Modern Language Conference

The autumn session of the Modern Language Conference of the division of Modern languages and literatures was held on Monday, November 18, from 3 to 5 p. m. During the hours of the conference all graduate instruction in the division was suspended, and nearly all members of the teaching staff and of the graduate school whose major subjects are in the division were present. The program consisted of a paper by Professor W. H. Carpenter entitled "The Edda in English," an interesting and enlightening review of the translations of the Norse poems into English and a comment on the growth of scholarly and poetical appreciation of the Norse poetry. This was followed by a symposium on the subject "Can the love of literature be promoted by graduate methods of instruction?" by Professor Baker, Professor Cohn, Professor A. H. Thorndike, and Professor Thomas, which elicited much interest. The winter meeting of the conference will take place in January or February, and the spring meeting in April.

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The Hispanic Society of America

The Hispanic Society of America, with its stately home in Audubon Park, was founded in 1904 for the "advancement of the study of the Spanish and Portuguese languages, literature, and history, and the advancement of the study of the countries wherein Spanish and Portuguese are or have been spoken languages." The membership, limited to one hundred, is international and is granted only in recognition of scholarly research in the Hispanic field. The Society publishes a quarterly, *La Revue Hispanique;* a series of critical texts called *Bibliotheca Hispanica;* and, so far as its resources will permit, any books of original research whose subjects lie within the Society's field, *e. g.,* the great world map of Hondius, edited by E. L. Stevenson and J. Fischer, and a critical edition of *Don Quijote,* with introduction, in seven volumes (three volumes photographically reproducing the first three editions, and four volumes of critical text by R. Foulché-Delbosc, with an introduction by James Fitzmaurice-Kelly). It is planned to publish, later, a complete etymological glossary and concordance of *Don Quijote.*

Columbia is particularly fortunate in having The Hispanic Society practically at her side. To mark the cooperation of the two institutions in furthering Hispanic studies, there is being given at Columbia, but under the auspices of the Hispanic Society, a series of lectures on Spanish literature, and the Society was so fortunate as to obtain for this series the services of James Fitzmaurice-Kelly. Nor does this course of lectures indicate all that the Society means to a Columbia student, for he will enjoy special privileges in the use of the Society's rich store of treasures in the languages, literatures, history, art, and archæology of ancient Hispania. The Society has offered seminar rooms to the departments of history and Romance languages, and it is expected that next year some of the advanced courses will be given at Audubon Park.

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The Non-Technical Lectures

The non-technical lectures in science, philosophy and art opened auspiciously on October 16, Professor Keyser treating the subject of mathematics. These lectures, which are descriptive of the achievements of science and modern scholarship, are intended primarily for the officers, students and alumni of the University, but are open to the public. The lectures are being delivered in 309 Havemeyer on Wednesday afternoons. A separate syllabus is prepared for each lecture and may be had one week before the lecture upon application to the secretary of the University. The complete program follows:

I—October 16, Mathematics, Professor Keyser; October 23, Physics, Professor Nichols; October 30, Chemistry, Professor Chandler; November 6, Astronomy, Professor Jacoby; November 13, Geology, Professor Kemp; November 20, Biology, Professor Wilson; November 27, Physiology, Professor Lee; December 4, Botany, Professor Richards; December 11, Zoology, Professor Crampton.

II—December 18, Anthropology, Professor Boas; January 8, 1908, Archæology, Professor Wheeler; January 15, History, Professor Robinson; January 22, Economics, Professor Seager; February 12, Politics, Professor Beard; February 19, Jurisprudence, Professor Munroe Smith; February 26, Sociology, Professor Giddings.

III—March 4, Philosophy, President Butler; March 11, Psychology, Professor Woodworth; March 18, Metaphysics, Professor Woodbridge; March 25, Ethics, Professor Dewey.

IV—April 1, Philology, Professor Jackson; April 8, Literature, Professor Peck.

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Other Lecture Courses

The readers of the QUARTERLY will no doubt also be interested in two other series of lectures that are being given under the auspices of the University this winter. The first consists of the lectures on the George Blumenthal foundation on "The principles of politics from the viewpoint of the American citizen," which are being delivered by Jeremiah W. Jenks, professor of political economy and politics in Cornell University. They are given on Thursdays at 4.10 p. m. in Earl Hall, the dates and subjects of the individual lectures being as follows: October 10—The nature of the state and of government; October 17—The political motives; October 24—The suffrage; October 31—Political parties; November 7—The principles of representation; November 14—The principles of legislation; November 21—The work of the executive; December 5—The work of the judiciary; December 12—The Constitution; December 19—International relations.

In cooperation with officers of the United States Navy and the United States Coast and Geodetic Survey, the University is offering a series of public lectures in navigation and nautical science. They are intended for yachtsmen, officers of merchant vessels in New York harbor, and all persons interested in the safe navigation of the seas. The lectures are given in 309 Havemeyer on Tuesday afternoons at 4.30, and are illustrated. The dates of the lectures, with the names of the lecturers and their subjects, follow:

I—November 12, Introductory address, Rear-Admiral C. F. Goodrich, U. S. N.; November 12, Dead reckoning and coastwise navigation, Lieut.-Commander W. S. Crosley, U. S. N.; November 19, The bottom of the sea and its uses in navigation, Lieut.-Commander W. S. Crosley, U. S. N.; November 26, Deep sea navigation: latitude, Lieut.-Commander R. H. Leigh, U. S. N.; December 3, Deep sea navigation: longitude, Lieut.-Commander R. H. Leigh, U. S. N.

II—December 10, The sun and its motions, Professor Poor; December 17, The making of an almanac, Professor Poor.

III—January 14, Tides: their characteristics, observation and prediction, Dr. R. A. Harris; January 21, The causes and representation of the tides, Dr. R. A. Harris; January 28, Tidal currents and meteorological tides, Dr. R. A. Harris; February 4, How charts are made and used, lecturer to be announced.

IV—February 11, The magnetic survey of the Pacific Ocean by the Carnegie Institution, Dr. L. A. Bauer; February 18, Finding the north magnetic pole, Professor Hallock; February 25, The history of the compass and its errors, Captain Howard Patterson.

Syllabi have been prepared and may be had upon application to the secretary of the University.

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Professor Maclaurin

Richard Cockburn Maclaurin, A.M., LL.D., professor of mathematical physics in Victoria College, Wellington, New Zealand, who has been appointed professor of mathematical physics, was born in Scotland and received his early education in New Zealand. After graduation from Victoria College he became Foundation Scholar in St. John's College, Cambridge, where he achieved the very highest honors and prizes in both mathematical physics and law. He was Smith's prizeman in 1898 and also won the much coveted York prize in law. He studied later at Strassburg and was elected a fellow of St. John's College and a doctor of laws from

Cambridge. Professor Maclaurin is a member of the Honorable Society of Lincoln's Inn and of the Mathematical Society of London. He has been a frequent contributor to the Proceedings of the Cambridge Philosophical Society, the Philosophical Transactions of the Royal Society, the Philosophical Magazine, and the Australasian Association for the Advancement of Science.

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The New Trustee

Marcellus Hartley Dodge was born on February 28, 1881, in New York, and was prepared for college at the Browning school. His record as an undergraduate was an active one. He was coxswain of one of his class crews and interested throughout his course in the rowing club. For one year he served as business manager of *Spectator* and as one of the editors of the 1903 *Columbian*. His main interest, however, was perhaps in the work of the Young Men's Christian Association, of which he was president in his senior year. Upon graduation Mr. Dodge and his aunt, Mrs. Helen Hartley Jenkins, made dormitory life possible for the men at Columbia University by their gift of Hartley Hall in memory of Mr. Dodge's grandfather, Mr. Marcellus Hartley. Mr. Dodge has been connected since graduation with the M. Hartley Company, which was founded by his grandfather.

Mr. Dodge will bring to the counsels of the Trustees an intimate knowledge of undergraduate affairs at Morningside Heights from the student point of view, the benefits of an excellent training in modern business methods, and most important of all a most enthusiastic loyalty to his *alma mater*.

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Hamilton Statue

At the meeting of the Association of the Alumni of Columbia College held in Hamilton Hall, on February 2, the following committee of alumni was appointed to raise the funds necessary to erect a statue of Alexander Hamilton in front of Hamilton Hall: Herbert Livingston Satterlee, '85; William G. Low, '65; Arthur Delano Weekes, '72; Spencer Aldrich, '74; W. Fellowes Morgan, '80; Willard Vinton King, '89; Cortlandt Field Bishop, '91; Andrew V. Stout, '93; Harry H. Flagler, '97, and Robert L. Pierrepont, '98. The association subscribed $5,000, and the balance of $7,000 is to be raised through individual subscriptions. A plaster model of the proposed statue (see frontispiece), the work of William Ordway Partridge, '85, was recently placed in position at the head of the College quadrangle. Subscriptions should be sent to Willard V. King, 26 Broad St., New York City.

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The James Request

Under the will of Mr. D. Willis James, who died recently, the University will receive a bequest of one hundred thousand dollars. As long ago as 1870, Mr. James evinced his interest in Columbia by gifts to the department of mineralogy, and on the purchase of the new site he contributed fifty thousand dollars toward the cost. The James scholarships were so named in acknowledgment of the latter gift.

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The Round Table

The first regular meeting of the Round Table was held on Tuesday evening, November 12, in Earl Hall. President Butler spoke on "Internationalism in education," and Dr. Leonhard, Kaiser Wilhelm professor 1907–08, presented the German point of view respecting education. A brief report was also presented by the committee on educational progress.

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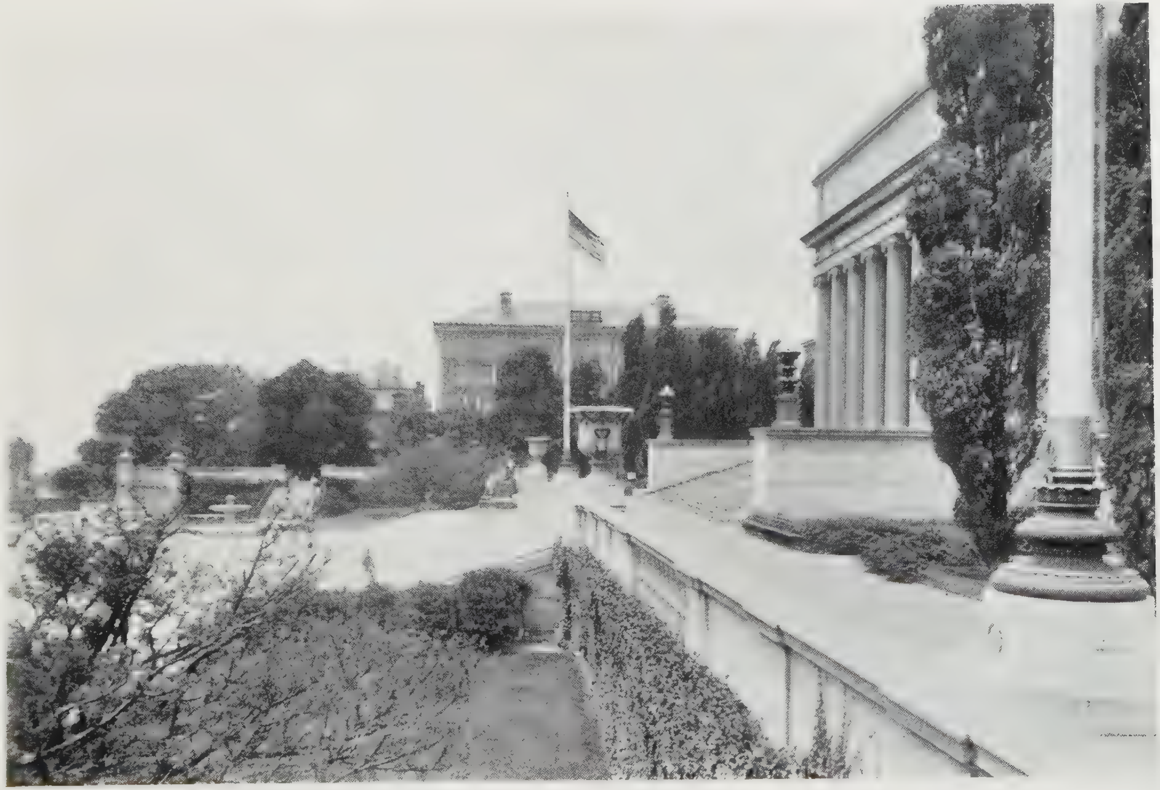
New Postal-card Views

A series of twenty-four views of the University, mounted on postal cards, has recently been issued and is on sale in the University Bookstore. The cards are extremely artistic and give an admirable impression of the University grounds and buildings. They are well adapted for use in distributing notices of alumni meetings and may also be used for ménus. The photographs, several of which are reproduced in this issue, are all new.



SOUTH COURT FROM THE EAST

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FACULTY AND DEPARTMENT NOTES

Columbia College—Mines, Engineering and Chemistry—Law—Fine Arts—Teachers College—Pharmacy—Extension Teaching

Anthropology — Botany — Chemistry — Comparative Literature — Economics — Electrical Engineering — English — Geology—Germanic Languages—History—Indo-Iranian Languages—Latin — Library — Mathematics—Mechanical Engineering—Metallurgy — Mining — Neurology—Physical Education—Physics—Physiology — Romance Languages—Surgery

Columbia College

At the meeting of the faculty of Columbia College held on October 11, 1907, the members were assigned by lot into three classes, to serve, respectively, until July 1, 1908, July 1, 1909, and July 1, 1910, as follows: To serve until July 1, 1908—Professors Seligman, Dunning, Hallock, McCrea, Bogert, Keyser, Meylan, Shotwell, Mitchell (H. B.), Page, Jordan, McGregor, and Beard; to serve until July 1, 1909—Professors Perry, Cohn, Kemp, Egbert, Thomas, Lord, Farrand, Odell, Calkins, Hervey, Tombo, Mr. Curtis and Mr. Mitchell (S. A.); to serve until July 1, 1910—Professors Peck and Carpenter (G. R.), Dr. Canfield, Professors Young, Maclay, Seager, Woodbridge, Shepherd, Tufts, Botsford, and Woodworth.

Schools of Mines, Engineering and Chemistry

On May 24 last, Dean Goetze presented to the faculty of applied science a report from the committee on program of studies, on the question of making the first year curriculum identical for all courses leading to a degree in the Schools of Mines, Engineering and Chemistry.

For several months previous the committee had had this matter under consideration, together with certain proposed modifications of the entrance requirements. In dealing with the first year curriculum, it was found necessary to discuss at once a rearrangement of the studies of the other years also; particularly the second year schedule, which would naturally be most affected by changes in the first year. The last formal revision of courses was made in 1901–02. The cooperation of representatives of the departments interested was invited in drawing up and discussing tentative plans. The first year studies of these schools have been differentiated more and more in recent years, and to harmonize the requirements a number of radical readjustments were demanded. Only by serious concessions on the part of some of the departments of instruction was it possible to attain the desired result. This was particularly true with regard to first year shop-work, the importance of which for students of mechanical engineering is much greater than for students of the other schools.

With but one modification the report of the committee was adopted by the faculty, and the new schedule for the first year went into effect in September, 1907. The subjects principally affected by the changes are mineralogy, shop-work and botany, moved from the first to the second year; the number of hours for general physics in the first year is increased, this subject now including elementary mechanics; the greater part of mechanical drafting is concentrated in the first year, and in equalizing the time allotted to it, an advantageous increase of hours is made for some of the courses; the theory of plane surveying is now given to students of all courses. Other changes were also necessary, as in equalizing for all courses the work in qualitative analysis. Under the new schedule there is a slight decrease in the total amount of work required in the first year.

Although some progress was made at the same time in revising the studies of the second, third and fourth years, much still remains to be done. It has long been recognized that the work of the third year should be lightened, and it is hoped that the revised schedule may be completed to go into effect next fall. In studying the subject it is desired to eliminate possible duplication of courses in the different departments and to insure proper coordination in all branches.

Several advantages are expected from having the first year work identical in all the schools under this faculty. First, it will greatly facilitate the admittance to advanced standing of students from other institutions. Heretofore such candidates for admission have usually been embarrassed by serious conflicts of recitation and lecture hours, occurring chiefly in the first and second years, in subjects for which they could not be given credit on entering. The number of such conflicts will now be reduced and these students will be able more promptly to complete their matriculation and often to enter with fewer conditions. Second, it will now be unnecessary for candidates for admission to the first class to declare at once which course they wish to take. They may postpone their decision until the beginning of the second year, thus having the advantage of more time for deliberation, in the light of experience gained during the first year's work, where uncertainty exists respecting inclination or natural bent. Third, the common first year curriculum will tend to a better coordination of those courses which are fundamental to all technical training. It will aid in the administration of the rather complicated educational structure of the schools of mines, engineering and chemistry, and will afford less opportunity for instituting changes which might be proposed hastily and without due consideration. Lastly, the first year class is now a unit, and for recitations and quizzes can be divided into smaller sections. In some studies there are six, eight, or even more sections. This subdivision obviously tends to more thorough work and has already produced excellent results in managing this year's large entering class.

School of Law

Dean Kirchwey has been elected president of the Association of American Law Schools.—Alfred Hayes, Jr., A.M., LL.B., for four years tutor in the law school, has been appointed professor of law at Cornell University.

Professor John C. Gray, LL.D., of Harvard University, has been appointed Carpentier lecturer for the current year.

Faculty of Fine Arts

The following lectures are being given under the auspices of the faculty of fine arts on Monday afternoons at 4.10 o'clock in 309 Havemeyer Hall: November 18 and 25—The Buddhist, Moslem and Hindu architecture of India, by Charles W. Stoughton, Ph.B.; December 2, 3 and 9—*Die naturalistische Bewegung, Die moderne Monumentalmalerei,* and *Die moderne Plastik,* by Dr. Paul Clemen, of the University of Bonn and German exchange professor at Harvard, 1907–08; December 16—Some examples of Japanese architecture, by Charles W. Stoughton. The second series, to be announced later, will open on January 6, 1908. All of the lectures are illustrated and are open to the alumni of the University.

Teachers College

On October 15, the trustees celebrated the tenth anniversary of the connection of the College with the University and the appointment of Dean Russell by presenting him with a loving cup and other testimonials of their appreciation of his work. During his incumbency the attendance at the College has increased six-fold, that of the college schools four-fold, that of its extension teaching eight-fold. Its resources have increased from less than two to nearly five million dollars, its annual expenditure from $140,000 to $420,000. And it is believed that these figures indicate a corresponding development in public usefulness.

Recent gifts to the College have included a lectureship in kindergarten education, a similar lectureship in the department of extension teaching, a substantial addition to the College loan fund by the class of 1907, textiles to the department of domestic art, and antique jewelry and glass to the educational museum. The authorities of the Jamestown Exposition have awarded Teachers College a gold medal for its exhibit of work done by students.

The College is giving all possible aid to the new movement for the promotion of industrial education. It has issued for distribution "A study of industrial education in Württemberg," as this suggests the possibility of similar work in the United States. Professor Richards, as secretary of the Society for the Promotion of Industrial Education, has issued a comprehensive bibliography of the subject. Professor Richards is also giving for the first time in connection with his department of manual training, a course in the organization of industrial education placed at late afternoon hours, so as to allow the attendance of active teachers and school officers.

The department of hospital economics, which prepares trained nurses to become teachers and officers of nurses' training schools, has arranged a series of forty lectures on hospital organization and administration. Charles Butler will speak on hospital planning; Superintendent Goodrich of the Bellevue Hospital Training School on hospital essentials; Superintendent Banfield of the Philadelphia Polyclinic Hospital on hospital administration. A representative of the Johns Hopkins Hospital will speak on training school administration, and the course will conclude with a review of the history of nursing and of hospitals by Secretary Dock of the International Council of Nurses.

In anticipation of the opening of the new domestic economy building, the excavation for which is now completed, a committee of the faculty is preparing a comprehensive statement of the problem of classification and terminology in this field of education. The report will be distributed among educators with requests for suggestions, in the hope of arriving at a generally acceptable plan.

Professor Simon Newcomb, emeritus director of the National Observatory and honorary professor of astronomy at Johns Hopkins University, is superintending a series of Speyer School experiments in the teaching of mathematics. During the first half year his attention is devoted to arithmetic, in the endeavor to free the beginnings of that subject from unessential theory, while at the same time giving pupils definite details and combinations in a way that will form the basis for theory later on.

A former fellow of the College, who has just returned from acting as European agent for the Carnegie Foundation, has made an interesting comparison between the Bryson Library and leading libraries in Europe. Its educational collections are exceeded in size by two others, the *Central-Bibliothek* in Leipzig and the *Musée Pédagogique* in Paris. But its circulation is more than three times as large as any other, and its purchases within the last half-dozen years give it more material concerning recent educational developments in England, France and Germany than any library in those countries.

The Neighborhood Work of the Speyer School has announced for the year two series of public lectures and socials. On Sundays at four Professors Dutton, Snedden, Lindsay and others will speak on various aspects of social service. On Wednesdays at eight Professors Kinne, Woolman, Dow, Nutting and others will speak on local history, industry, literature, art, music, and physical education. The neighborhood work is conducting some thirty clubs and classes weekly for members of the families whose children attend the Speyer School.

The College continues its cooperation with a number of educators who are endeavoring to see how current educational theory and practice may be made to contribute to religious teaching. For the sixth season a Sunday-school is being conducted at the College with expert direction, a graded course of study, skillful teaching, and modern school-room equipment. The school includes children of every grade from kindergarten to high school, and a bible class for adults. This year for the first time there will be, in addition, a public lecture upon a religious theme by a professor from Union Theological Seminary.

Beginning with the current number, the *Journal of Geography* will be issued by Teachers College. Professor Dodge of the department of geography will continue to be its editor. Other recent publications include "Administration and educational work of American juvenile reform schools," by David S. Snedden; "The concept of equality in the writings of Rousseau, Bentham, and Kant," by J. A. T. Williams; "Herbart and Froebel: An attempt at synthesis," by Percival Richard Cole; "Public education in Upper Canada. Ontario 1791–1841," by Herbert T. J. Coleman; "The learning process or educational theory implied in theory of knowledge," by Jesse Coursault; "The constructive interests of children," by Ernest B. Kent; "Formal discipline," by C. J. C. Bennett; and a reprint of "Idiocy and its treatment by the physiological method," by Dr. Seguin. The New York State Library's annual summary of educational literature includes in its selection of indispensable books issued in 1906 Professor Thorndike's "Principles of teaching" and former Professor Rouillion's "Economics of manual training." The list also calls attention to fourteen other publications by officers of Teachers College.

Dean Russell has returned from a six weeks visit to a score or more of central and western colleges and universities that have sent their graduates to study at Teachers College. His route extended from Toronto, on the north, to Missouri, on the south, and Colorado, on the west.

Four officers of Teachers College have been made chairman of sections of the Lake Placid Conference on Home Economics: Professor Kinne of the trade section; Professor Woolman, trade schools; Miss Barrows, household appliances; Mr. Andrews, training schools. Professor Snedden and Miss Mills of Teachers College have become members of the editorial committee of the *Kindergarten Magazine*. Mr. O. G. Cartwright of the Horace Mann School has been made secretary of the Schoolmaster's Association. Miss Patty Hill, instructor in kindergarten, has been elected first vice-president of the International Kindergarten Union.

Dean Russell has recently delivered at the College to students who will be teachers next year, a series of addresses on "The aim of American education compared with English and German"; "The outlook for American teachers"; "The teacher's responsibilities"; "The conditions for success in teaching." Teachers College is coöperating with the Brooklyn Institute of Arts and Sciences by providing nine courses of instruction at the institute during the present winter: elementary teaching will be treated by Professor Suzzallo, educational administration by Professor Snedden, principles of education by Dr. Cole, educational psychology by Mr. Betts, and Sunday-school teaching by Dr. Hodge. Professor Sykes and others will give courses in English.

Professor Woolman is announced to speak before the Boston School Board Committee in connection with the opening of a practical arts high school in that city. Professor Kinne will address the coming Chicago meeting of the conference on home economics. Professor Dutton has been made a member of the council of the newly established Civic Forum of New York. Professor Dodge opened the Brooklyn Y. M. C. A.'s lecture course on real estate as a science with an address on "Topography and land value." Miss Crawford of the department of physical education will deliver four lectures in the Ethical Culture School's course on "School festivals."

During the summer, Professor Nutting read a paper before the International Council of Nurses in Paris, Professors Snedden and Strayer continued their European investigations in educational administration and elementary education, and Professor Bagster-Collins carried on similar work in his field in Germany. Professor Smith, who is spending a year's leave in the Orient collecting books and manuscripts bearing on the history of mathematics, writes that he has already found much more material than he had hoped. Professor Monroe is spending a half-year's leave in Germany. Professors McMurry and Farnsworth are also on leave of absence.

The Graduate Club continues its bi-weekly series of educational addresses. The new Secondary Education Club announces addresses before its members by President Taylor, of Vassar; by Assistant State Commissioner of Education Goodwin; and by President Chapin, of the Rhode Island State Normal School. The Students Executive

Council recently inaugurated with a visit to the home of Irving at Tarrytown its annual series of excursions to places of historical, social, literary and artistic interest.

One hundred appointments of former students have been arranged this autumn by the appointment committee of the College. Seventeen, in universities and colleges, include one acting dean, two professors of education, one professor of sociology, and an associate professor of history. Twenty-five are in high or normal schools and represent work in the subjects of history, language, science and education. Nineteen positions in domestic art and science include one professorship and two supervisorships. Of the other appointments, nine are in manual training, thirteen in elementary, and four in kindergarten teaching, including supervisorships and principalships, the presidency of a state normal school, and two superintendents of city school systems.

The appointment secretary reports that two thousand applications for teachers have been received, as against 1,471 during the preceding year—" from all quarters of North and South America; from Japan, China, India, even the Straits Settlements. . . . From colleges and universities we have had 168 inquiries; for superintendents, 12; from normal schools, 119; for supervisors and special teachers, 589; from secondary schools, 613; from elementary schools, 251; for hospital work, 71; from settlements, 110; for tutors, 112; and summer positions, 62. Besides these there are unclassified inquiries of wide range to the number of 217. . . . We have not yet men enough in residence to fill college and administrative positions, or women enough for the supervisory and critic work that offers. Never before in the history of the College have we been obliged to refuse so many important places."

The following table shows the distribution of appointments reported to the Committee for the years 1905–06 and 1906–07:

	1905–06	1906–07
Colleges and Universities	41	84
Superintendents of Schools	3	5
Normal Schools	20	47
Supervisors and Special Teachers	114	208
Secondary Schools	152	168
Elementary Schools	70	74
Kindergartens	24	17
Hospital Administration	13	20
Miscellaneous Positions	24	42
	461	665
Less names counted twice	88	154
Total	373	511

College of Pharmacy

The seventy-eighth annual term of the College of Pharmacy opened September 30, with an attendance of 120 junior, 90 senior and 2 post-graduate students. Of these, about 50 constitute the University section of candidates for the degrees of pharmaceutical chemist and doctor of pharmacy. As a consequence of the National Food and Drugs Act, there has developed an urgent need for trained chemical and microscopical analysts, and in order to meet this demand, the trustees of the College have established a distinct and independent course, embracing technical microscopy, pharmaceutical assaying, quantitative analysis, and the examination of food products. Thus far the attendance, numbering seventeen students, is greater than had been anticipated.

Dean Henry H. Rusby has been appointed official expert in drug products for the U. S. government.

Extension Teaching

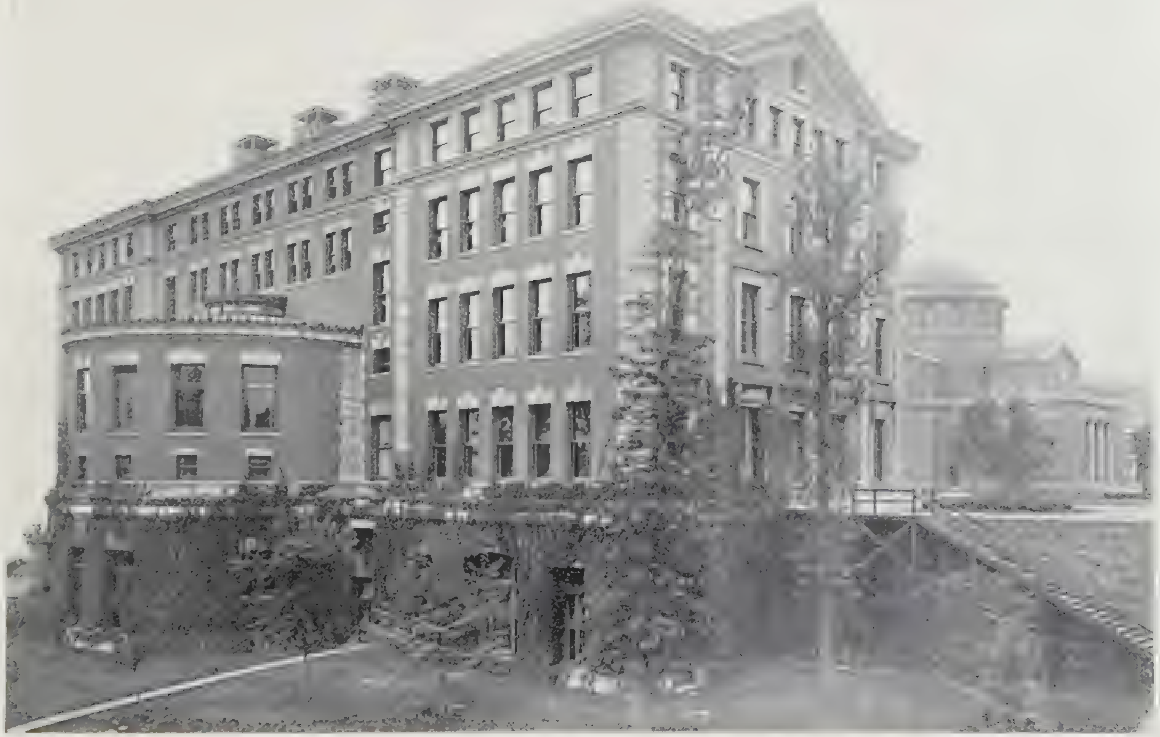
The recent development of the work of extension teaching is very marked. With the opening of the new year there are registered at the University in extension teaching courses and Teachers College courses open to non-matriculated students 1,126 students; in collegiate and professional courses given away from the University, 1,594; in the evening technical courses, given at the University, 383 students, giving a total on October 31, of 3,103 students.

Noteworthy features of the work of the new academic year are the offering among the evening technical courses of three courses in architecture at the University, and the opening of a course in art photography, and of an advanced course in electrical machinery.

There is an increasing demand for short courses of lectures in local centers. Nineteen of these courses are being offered during the first period, *i. e.,* October, November and December.

Department of Anthropology

Edward Sapir was appointed assistant in the anthropological department of the University of California, and since July 1 has been carrying on investigations on the languages of central California, especially among the Yana. Frank G. Speck has been appointed fellow in the department of anthropology of the University of Pennsylvania. He is continuing his researches on the Uchee Indians. Robert Lowie has been engaged in field researches among the Assiniboine Indians, which were carried on for the American Museum of Natural History. Leo Frachtenberg visited, for the Bureau of American Ethnology, the Iroquois reservations of Canada to study the remains of the language of the Tutelo.



ST. PAUL'S CHAPEL

SCHERMERHORN HALL
FROM THE GROVE

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DEPARTMENT OF BOTANY

Dr. C. C. Curtis has just brought out a work especially adapted to the needs of the first year men in botany, entitled "The nature and development of plants"; this will serve as a general text-book of botany and is planned so as to give stress to the significance of plant life, to make of the study a subject that not only opens up to the student a practical knowledge of the world about him, but further leads him to a rational consideration of its real significance. The book is a sane and logical presentation of the subject, and has the practical merit of having been tested with commencing students for the past two years. Since the laboratories were established in botany, the number of students entering first year work has more than quadrupled, and the rigidity of the work as maintained by Dr. Curtis is the only means of preventing excessive overcrowding of the too small working force of the department.

The usual number of research students is at work at the botanical garden, in spite of the fact that for the first time in twelve years at least the department has neither fellow nor scholar. F. J. Seaver, who held the fellowship in botany last year, received an election as assistant professor of botany in the North Dakota Agricultural College. His thesis on the North American *Nectriaceæ,* which forms an initial part of a larger monograph of the *Hypocreales* and which he has well under way, is nearly ready for printing. He expects to return for his degree next commencement. Mr. Homer D. House, who was scholar in botany in 1901–02 and for a year and a half assistant in botany, has returned to complete his thesis for a doctor's degree, having resigned his position held in Clemson College, South Carolina. His thesis involves a monograph of the *Convolvulaceæ* and has necessitated not only the correlation of the larger collections of the country, but considerable field study as well. Miss W. J. Robinson has a year's leave of absence as instructor in botany at Vassar, and is continuing her work on the development of the filmy ferns and on the ferns of Hawaii. Miss Mary P. Anderson is continuing her work on the relations of the fern flora of Japan; she spent several weeks during the summer examining Japanese types in the collection at Kew, England, and especially in the Sauvatier collection at the museum of the Jardin des Plantes, Paris. Miss Burlingham spent a second summer in field work on the *Lactariæ,* this time in the mountains of North Carolina in the vicinity of the Biltmore school of forestry; she is now completing her thesis.

Recent contributions from the department include three papers by Professor Underwood on tropical American ferns; two by Miss Burlingham, one on the *Lactariæ* of Vermont, and the other on the influence of magnesium sulphate on the growth of the seedling; and one by Miss Alice A. Knox, formerly assistant at Barnard, on the stem of *Ibervillea Sonoræ*.

DEPARTMENT OF CHEMISTRY

A rearrangement of instruction in qualitative analysis has been made in connection with the adoption of the uniform curriculum for the first year in the schools of mines, engineering and chemistry, so that the first-year class is now divided into two main sections, each of which occupies the laboratory during one half year; while for classroom work each half of the class is divided into two sections in lectures and six in recitations.

Professor J. S. C. Wells has returned from two years' leave of absence and has resumed charge of the qualitative laboratory. Dr. K. G. Falk has been appointed tutor in physics, and Eric Higgins, B.Sc. of Victoria University, Manchester, has been appointed to the vacant assistantship in physical chemistry. Dr. Alfred Hoffman, having completed his work at Berlin University, is now assistant in organic chemistry. Dr. H. K. Benson, University fellow in chemistry 1906–07, received the degree of Ph.D. (physical chemistry) in June, and has returned to the University of Washington, where he is acting head of the department of chemistry. Of the students who took degrees in chemistry last year, Dr. J. M. Nelson is now an instructor at the Rensselaer Polytechnic Institute; Dr. R. R. Renshaw, is a member of the chemical staff of Wesleyan University; Dr. William Klaber is with the Chrome Tanning Company, Camden, N. J.; Mr. Schaeffer has gone to Germany for further study; Mr. Fischer is in the employ of the Casein Company of America; Mr. Kropff has returned to Columbia as a candidate for the doctorate. Dr. L. J. Cohn has accepted an appointment in the department of chemistry in the College of the City of New York.

In a recent examination held by the U. S. department of agriculture for the appointment of food inspection chemists, which was taken by hundreds of chemists in all parts of the country, Dr. H. A. Seil (Ph.D. in organic chemistry, 1906) received a ranking above all his competitors.

The thirty-sixth general meeting of the American Chemical Society was held at the University of Toronto, June 27–29, under the presidency of Professor Bogert. Papers were read by Professor Bogert, Dr. Chambers and Dr. Neish. Professor Morgan read a paper before the National Academy of Sciences, at its November meeting, describing his work with Mr. Reston Stevenson on "The weight of a falling drop and its relation to the surface tension of the liquid."

DEPARTMENT OF COMPARATIVE LITERATURE

Two new courses have been added to the graduate curriculum of the department, one on "Mediæval epics," by Professor Lawrence of the English department, and another on the "Romantic movement in Europe," which is given by Professors Fletcher and Spingarn in conjunction with Professor Thomas of the Germanic department and Professor Page of the Romance department. Several courses by Professors Matthews and Page have also been made part of the regular work for the higher degrees in this department. Professor Fletcher is offering a new course on Spenser in the department of English.

Two of the three volumes of "Critical essays of the seventeenth century," which Professor Spingarn is editing for the Clarendon Press of Oxford, are now in press, and will be published early in the winter. Professor Fletcher is preparing two works for publication, one on the Pastoral in Professor Neilson's series of "Types of English literature." The same series contains a two-volume work on "The literature of roguery," by Frank W. Chandler, who took his doctor's degree in this department and held the position of tutor in comparative literature for several years.

The *belles lettres* competition inaugurated last year by Professor Spingarn for the encouragement of literary activity among the undergraduates was highly successful; the unusual number of sixteen poems, seventeen short stories, and six critical essays was submitted. The competition will be continued each year hereafter until further notice.

DEPARTMENT OF ECONOMICS AND SOCIAL SCIENCE

An unusually large number of positions has been secured for the recent graduates of the school of political science in the department of economics. Every one of the men who took his degree of doctor of philosophy during the past year has now been placed in institutions ranging from the University of Florida in the south to the University of Montana and the State College of Washington in the northwest. Several men have entered the government service as special experts, and some have entered the consular service.

The series in History, Economics and Public Law, under the editorship of Professor Seligman, has published ten monographs during the past six months. They are as follows: "The budget in the American commonwealth," by Eugene E. Agger, Ph.D.; "The finances of Cleveland," by Charles C. Williamson, Ph.D.; "Trade and currency in early Oregon," by James H. Gilbert, Ph.D.; "Luther's Table Talk," by Preserved Smith, Ph.D.; "The tobacco industry in the United States," by Meyer Jacobstein, Ph.D.; "Social democracy and population," by Alvan A. Tenney, Ph.D.; "The economic policy of Robert Walpole," by Norris A. Brisco, Ph.D.; "The United States Steel Corporation," by Abraham Berglund, Ph.D.; "The taxation of corporations in Massachusetts," by Harry G. Friedman, A.B.; and "De Witt Clinton and the origin of the spoils system in New York," by Howard Lee McBain, Ph.D.

Professor Seligman has been made chairman of the bureau of municipal research, in which the other trustees are R. Fulton Cutting, George McAneny, Albert Shaw, Carroll D. Wright, Richard Watson Gilder, and Frank Tucker.

The third edition of Professor Seligman's "Principles of economics," revised and enlarged, has just appeared. A Japanese translation and a Russian translation are now under way and will be published shortly. The second edition of his "Economic interpretation of history" appeared during the summer. Spanish, Japanese and Russian translations have also appeared during the year. A Japanese publisher has requested permission to translate all of his books into Japanese.—Professor Giddings is giving two courses of lectures, one at the Cooper Institute and one at the Brooklyn Institute. He was also one of the speakers at the meeting of the Boston Economic Club in November.—Professor Seager is delivering thirty lectures on "The labor problem," in the School of Philanthropy.—Professor Clark's new book on "The essentials in economic theory" has just appeared. He has been put on the council of the newly formed Civic Forum.

The summer courses in economics were delivered by Professor Roswell G. McCrea of Bowdoin College, a former student of Columbia. Mr. McCrea has, in the interval, been appointed assistant director of the School of Philanthropy in New York.

Several new courses are offered in the department of economics and social science this year, one by the new professor of social legislation, Professor Lindsay, one by Dr. Agger, and two courses at Barnard by Professor Mary G. Simkhovitch.

DEPARTMENT OF ELECTRICAL ENGINEERING

E. E. Holcombe, B.S., lecturer in electrical engineering, O. von Dannenberg, E.E., tutor, and S. S. Watkins, E. E., assistant, have resigned their positions in the department, and Edgar S. Downs, Ph.D., has been appointed tutor, and Victor Greiff, E.E. 1907, and S. F. Bond, E.E. 1907, assistants, leaving a vacancy in the position of lecturer.

The standardization rules of the American Institute of Electrical Engineers have recently been completed by the committee of which Professor F. B. Crocker is chairman, and have been adopted by the Institute. This work has been going on for two years, and the rules in their revised form are the permanent basis upon which all electrical machinery and apparatus are rated and tested. Professor Crocker has also been appointed secretary of the American section of the International Electrotechnical Commission, which includes representatives from twelve of the principal countries. This commission has undertaken the universal standardization of electrical machinery and apparatus, which is an interesting and important step in international affairs.

Professor G. F. Sever has been rearranging and developing the instrument laboratory during the summer. Morton Arendt, E.E., instructor, spent two months in Europe visiting various technical schools and electrical establishments.

The gift of a 40 kilowatt motor generator set has been received from the Interborough Rapid Transit Co. through Mr. August Belmont. This is an important addition to the facilities of the department. The department has purchased for its laboratories much new apparatus available for student use.

The alternating current laboratory has been greatly improved by removing the partition between two of the rooms, thereby forming one large laboratory, with much improved light and ventilation, as well as facilitation of supervision. The apparatus has been rearranged and a new switchboard erected by which the various machines may be controlled.—The recent introduction of lecture and laboratory instruction in hydraulics has been a valuable addition to the course in electrical engineering.

The Electrical Engineering Society of Columbia University had a very successful session during the past college year, with regular fortnightly lectures by prominent engineers. The society has already arranged a similar program for the coming year, and notices of these meetings will be regularly announced in the *Electrical World*.

On account of the large number of students in the courses of mechanical and electrical engineering, and because of the somewhat different requirements for the two bodies, it has been found advantageous to give separate instruction to the fourth year classes. This division of the classes necessitates partial duplication of the lectures, but is considered well worth the extra labor involved.

DEPARTMENT OF ENGLISH

The number of students in the graduate courses promises to be larger this year than ever before. The present registration gives an enrolment of 278 in the ten courses and 31 in the three seminaries. There are 125 students taking English as a major, and 47 taking a minor, in comparison with 118 and 51, respectively, at this time last year.

The following students have been appointed recently to the positions stated:

Ernest S. Bates, A.M. 1903, tutor in English, Columbia College; Nathaniel W. Barnes, A.M. 1903, assistant professor in English, DePauw University; Rush M. Caldwell, A.M. 1907, principal of the literary department, Newman Manual Training School, New Orleans, La.; Leonidas W. Crawford, A.M. 1903, teacher of English in the College of the City of New York; William T. Darby, A.M. 1907, teacher of rhetoric and composition in the University of Washington, Seattle, Wash.; Dean S. Fansler, A.M. 1907, instructor in English, Evanston Academy, Northwestern University; Claude M. Fuess, A.M. 1906, teacher of English in the George School, George School, Pa.; Charles F. Lawson, A.M. 1904, assistant in English, Columbia College; Mary E. Markley, A.M. 1907, teacher of English in the Westfield, N. J., High School; Julia P. Mitchell, A.M. 1904, instructor in English, Vassar College; Clara Shuart, A.M. 1907, teacher of English in the Glen Ridge, N. J., High School; Winifred Smith, A.M. 1907, teacher in Mrs. Knox's School, Lakewood, N. J.; Stella B. Stearns, A.M. 1906, teacher of English in Miss Graham's School, New Yory City; John W. Taylor, A.M. 1903, assistant in English, Columbia College; Mary R. Thomas, A.M. 1907, teacher of French in Chicora College, Greenville, S. C.; Samuel L. Wolff, LL.B. 1896, instructor in English in the law school, University of Michigan; Jacob Zeitlin, A.M. 1905, instructor in English in the University of Illinois.

DEPARTMENT OF GEOLOGY

The summer field session with the School of Mines and graduate students was held at High Falls, N. Y., the week before Commencement. The party numbered forty and worked upon the geological section to be crossed by the new aqueduct from the Catskills to New York. The strata exhibit many instructive features and the work was of added interest because of the great engineering problem associated with it. In the regular summer session of the University, Professor Grabau gave courses in general geology, comparative geology of North America, and index fossils. He was assisted by Miss Elvira Wood of the United States Geological Survey. All the courses were well attended.

During the summer Professor Kemp spent five weeks in the field for the State Geological Survey, completing the maps of the vicinity of Port Henry, the most important iron mining center of the Adirondacks. Data for an interesting paper upon these huge masses of iron ore were accumulated.

Previously to the opening of the summer session, Professor Grabau visited Letchworth Park, the area recently given the state along the Genesee river, and in cooperation with E. H. Hall, secretary of the Scenic and Historic Preservation Society, established several monuments for determining the recession of the falls. He devoted some time to the investigation of the physiographic problems in this portion of the state, accumulating data for a paper on the ancient drainage of the region. Following the summer instruction at the University, he gave his students a trip of four days in the Hudson Valley with headquarters at Hudson, and then went to Boston to attend the session of the Seventh International Congress of Zoology, acting as secretary of the section of paleozoology and presenting two papers. The department was represented in the exhibit made at the Congress by a case containing Devonic specimens so arranged as to show the various lines of parallel evolution followed in mid-Devonic time. During the New York week of the Congress, Professor Grabau served on the local committee. He next went to Detroit, where, in company with Professor Scherzer of the Michigan Survey, he investigated the problems presented by the late Siluric formations and their contact with the Devonic. The results of this investigation will be published during the winter. Later Professor Grabau spent two weeks in the northern portion of the lower peninsula, making additional observations and collections for his monograph of the various groups of Michigan.

A large collection of fossils was brought back as the result of the summer's work. During the spring Professor Graubau completed a paper describing the Upper Siluric fossils obtained in the salt shaft of Detroit, Michigan. The illustrations for this paper were made by Miss Johnson, who for a number of years has been employed as illustrator in the the Michigan State Survey.

Several important papers on the developmental stages in Paleozoic corals were published during the year as the result of work carried on in the paleontologic laboratory by Messrs. Gordon, Brown and Anderson.

Dr. Berkey continued his work for the State Survey in the Highlands of the Hudson, both in June and September. During July and August he went to Arizona with a small party of School of Mines students for their field work under the department. The mining camp of Tombstone was studied in some detail and comparisons were made with Bisbee.—Dr. Ogilvie passed a month in the field in the southern Adirondacks accumulating notes for a further contribution upon this region.—Dr. Julien completed during the summer an investigation upon the formation of serpentine and brucite, which has been in progress for some years. He also discovered some interesting chipped stones or artefacs in the gravels of Cape Cod.—T. C. Brown, for two years past assistant in the department, was appointed in June to the staff of the department of vertebrate paleontology of the American Museum of Natural History. He is succeeded by Edwin Kirk, 1907 College. F. C. Lincoln, fellow in geology, has been appointed professor of geology and mineralogy in the School of Mines, Butte, Mont. J. E. Hyde, fellow-elect, was employed by the Ohio State Geological survey during the summer.

The department has received several gifts of specimens from its former students, of which may be specially mentioned a fine suite of ores and fossils from San Pedro, N. M., collected by R. V. Mills, 1906 S.; and a complete series of rocks and by-products from the Kimberley diamond mines, South Africa, secured through the kind interest of Harold T. Dickinson, 1900 S. A series of twelve models of the enlarged protoconchs and early conch stages of tertiary and recent gastropods has been prepared under the direction of Professor Grabau, and plaster casts of these have been made by the American Museum, a duplicate set being placed in the paleontologic collection of the department, where they constitute a special exhibit.

DEPARTMENT OF GERMANIC LANGUAGES

Courses were offered in the summer session by Professors Hervey and Remy, Messrs. Heuser and Porterfield, and by Professor Robert H. Fife of Wesleyan University. New courses were those on German Syntax and The Romantic School by Professor Fife, and the pro-seminar on Goethe by Professor Hervey. A feature of the session were the public lectures in German given on Wednesday afternoons by the members of the department.

On October 25 Professor Remy lectured on the Siegfried legend before the *Deutscher Sprachverein.* Professor Tombo and Mr. Heuser delivered several lectures under the auspices of the Board of Education during October and November. Dr. Richard attended a conference of the Peace Society held in August at Greenacre, Me., and spoke on the peace movement; he also spoke at Mystic, Conn., on "Peace and education." Mr. Bechert spent his vacation in Denmark, Germany and Austria. On November 29 Professor Tombo lectured at Lafayette College on *Faust,* and on December 7 he delivered a lecture on *Das Nibelungenlied* before the *Germanische Gesellschaft* of Pittsburgh.

A series of ten lectures on German dramatists of the nineteenth century has been arranged by the *Germanistic Society of America* for the New York Association of High School Teachers of German, the Verein Deutscher Lehrerinnen in Amerika, the Verein Deutscher Lehrer von New York und Umgegend, and the Association of Special Teachers of German in the Public Schools of the City of New York. The lectures are being delivered in the German language in Room 309 Havemeyer Hall, on Thursday afternoons at 4.30 o'clock. The dates and subjects of the lectures are as follows: November 7—*Kleist,* Professor Karl Detlev Jessen, Bryn Mawr; November 21—*Grillparzer,* Professor Calvin Thomas, Columbia; December 5—*Grabbe,* Professor Robert Herndon Fife, Jr., Wesleyan; December 19—*Hebbel,* Professor Camillo von Klenze, Brown; January 9—*Ludwig,* Professor Max Friedrich Blau, Princeton; January 23—*Freytag,* Professor Marion Dexter Learned, Pennsylvania; February 6—*Anzengruber,* Professor John Firman Coar, Adelphi; February 20—*Sudermann,* Karl Knortz, Tarrytown, N. Y.; March 5—*Fulda,* Professor William Addison Hervey, Columbia; March 19—*Hauptmann,* Professor Rudolf Tombo, Jr., Columbia.—On October 28 Professor Otto Pfleiderer of the University of Berlin delivered a lecture in German on "The influence of Kant, Schiller, and Goethe."

DEPARTMENT OF HISTORY

Professor Sloane passed the greater part of his trip abroad, from May to September, in studying conditions in the Balkans. Professor Shepherd, who was absent from the University from May to November, represented Columbia on the peace mission to the countries of South America. Professor Shotwell represented the University at the installation of the new president of Toronto University in October. Professor Botsford gave courses in Greek and Roman history at the summer session. Dr. Beard has been promoted from lecturer in history to adjunct professor of politics. C. H. Hayes, 1904, was appointed last February lecturer in the department in place of Dr. Haworth, who resigned to accept a position on the editorial staff of the Avery History of the United States.

Among books recently published by members of the department may be noted the third volume of Professor Osgood's "American colonies in the seventeenth century," entitled "Imperial control"; Professor Dunning's "Reconstruction, political and economic," which is volume 22 in the American Nation series of Professor Hart; and the "Development of modern Europe," in two volumes, by Professors Robinson and Beard.

DEPARTMENT OF INDO-IRANIAN LANGUAGES

Professor Jackson returned early in July from a successful journey in Persia and Central Asia, and took up his work in the summer session, in which he gave courses on Shakspere and on Anglo-Saxon.

Three doctoral dissertations are now being prepared by students in the department, and it is expected that they will all be completed during the present academic year. One deals with a canonical Pali work of Buddhist lore; another with the curious conventions of the ancient Hindu drama, as they are found in an old native work on dramaturgy; the third, which is based on a number of original manuscripts kindly placed at the disposal of the author by Parsis of Bombay, presents the text of the Pahlavi, Pazend, and Sanskrit versions of a portion of the Zoroastrian scriptures.

The course of afternoon lectures on the literature, history and antiquities of India and Persia was resumed on November 8. The first series was given by Professor Jackson on the subject of "Persia and Persian literature," as follows: November 8—Persia revisited; November 15—Rise of Persian literature; November 22—Romantic poetry of Persia.

DEPARTMENT OF LATIN

With the new and spacious quarters in the library, formerly occupied by the registrar's office and now placed at the disposal of the Latin department for its graduate work, a new growth of the archæological laboratory is looked for, that will prove of great value to the students as well as of interest to the general public. The collections now in the possession of the department are being classified and properly labelled, and a new table-case has just been obtained, in which will be exhibited such specimens as are of particular use in connection with the archæological courses, and such others as are in themselves of interest and curiosity. It is planned to change this exhibit from time to time, and to augment the departmental collection with temporary loans as opportunity offers. At present the case shows specimens illustrative of the materials of construction and rich ornamental marbles of ancient Roman buildings. The overthrow of Pompeii is illustrated by examples of lava hurled up by Vesuvius in the recent disastrous eruption (a gift of Signor Ettore Ragozino of Naples) ; and there is also a series of Greek and Roman clay lamps, tracing the manufacture of these homely household necessities from the third century before Christ to the fourth of our era,—very many showing makers' names and artistic designs. Of the latter, the department has acquired this year many new varieties from the most recent excavations in Rome, along with other objects of interest from the same source. There is no intention of building up an art-collection; a laboratory, however, illustrating the arts, industries and private life of the ancients will, when well begun, prove a new and valuable aid to classical study in this University.

Professor Peck has been reelected president of the New York Latin Club, so that the present year will be the third of his incumbency. The publication of that Club, formerly known as *The Latin Leaflet*, has been transferred to the newly formed Classical Association of the Middle States and Maryland. It is now appearing as *The Classical Weekly* under the general editorship of Professor Lodge.

THE LIBRARY

During the summer important changes were made in the library. The crowded condition of the shelves, which resulted in the temporary removal of many large sets of books, some of them stacked in the top galleries and others in the basement, led to a rather far-reaching scheme of readjustment. The offices of the bursar and the registrar were moved to East Hall, thus releasing two rooms on the ground floor. The larger of these, room 109, was assigned to Roman archæology and ancient history. It was designed to serve as both seminar room and a depository for archæological specimens. Owing to the exhaustion of available funds, some of the shelving necessary for a complete equipment is not yet in place, but the University has now for the first time a home for ancient history. The periodical room was moved down to the old bursar's office in order to make way for a larger classical study in 208; but the lack of sufficient shelving for the books in classical philology prevented their removal from 209, and 208 was therefore turned over to medieval history, which had formerly been ill provided for in room 301. Greek archæology was given 211, besides the Avery Library. As a result of these complicated moves, no less than three new seminar rooms have been arranged, and some of the old ones have been released of considerable pressure of book space.

His Majesty, the German Emperor, has presented to the Library a *de luxe* edition of the works of King Frederick the Great of Prussia. A number of books have also been received from the Prussian Minister of Spiritual, Educational and Medical Affairs.

Department of Mathematics

A year ago the fact was mentioned in these notes that the rapidly increasing mathematical activity everywhere throughout the country was then reflected in the increasing demand for graduate courses at Columbia and the rapidly increasing number of students attending those that are offered. That phenomenon is even more noteworthy this year than it was a year ago. There is a considerable demand for a widening of the graduate offering in the summer session, though last summer four graduate courses were given by Dr. Ling and Professors Maclay, Kasner and Keyser; while in the current regular session not only are new courses well attended but the courses that have been hitherto regularly given are availed of by a notably improved attendance. The very considerable attendance upon such courses by teachers of mathematics in the high schools and other secondary schools of Greater New York and adjacent territory will, it is confidently expected, react more and more favorably upon the general conception and estimate of mathematics in the community at large and especially upon the instruction of those who are destined to seek admission to the various schools of Columbia and other colleges and universities.

A year ago the mathematical colloquium, which had been suspended for a time, was reorganized upon an entirely new plan. Meetings were held at intervals of about two weeks throughout the year. A score of lectures, followed by informal discussions, on subjects previously announced and representing a wide range of topics, were given by officers and graduate students. Having proved to be an effective means of supplementing the regular instruction, the colloquium is being continued this year upon substantially the same basis.

The laboratory equipment of the department has been made second to none, if not the first, in the country, by the purchase of mathematical models and instruments, including the famous collections of Wiener and Schilling. Room 501 Fayerweather has been suitably equipped with cases and shelving and set apart for the placing of these models, many of which are works of art and of very delicate structure. They are designed to aid the student in the increasingly important and difficult matter of visualizing the more intricate concepts and forms in function theory, geometry, analysis situs, and other abstract doctrines.

Joseph Lipke, who was for some years a graduate student in the department and served as an assistant during two successive summer sessions, has accepted appointment as an instructor in mathematics in the University of California. C. A. Toussaint, who was for three years an assistant in the department, has been appointed to a mathematical instructorship in the College of the City of New York. G. W. Hartwell, who was last year an assistant and graduate student, was made lecturer in the department for the year 1907–08. A. C. Krathwohl has been appointed tutor in Barnard College to succeed Dr. W. H. Bussey, who resigned to accept an assistant professorship of mathematics in the University of Minnesota.

Professors Smith and Fiske are absent on sabbatical leave. In the absence of the latter, Professor Maclay has assumed charge of his course in the theory of functions of the complex variable.

At the Ithaca meeting of the American Mathematical Society, Professor Kasner presented papers entitled "Geometric interpretation of integrating factors" and "Conformal representation of geodesic circles." At the Chicago meeting of the American Association for the Advancement of Science, Professor Kasner will address section A on "The relations of geometry and dynamics." An article by Professor Keyser on "Circle range transversals of circle ranges in a plane" has been published in the *Rendiconti del Circolo Mate-*

matico di Palermo. Professor Keyser has accepted the position of corresponding member of the recently organized American editorial board of the *Hibbert Journal.*

DEPARTMENT OF MECHANICAL ENGINEERING

The department offered three courses in the summer session, one on gas-engines, one on general laboratory investigation, and one on hydraulic laboratory practice, all of which were attended by men of extremely high grade, most of them graduates in engineering and several of them successful practitioners. The undergraduates during the summer were assigned to practical work in accordance with the plan so long successfully carried on by the mining department. The memoirs on their observations indicate great progress in engineering conceptions as a result of their personal contact with the practical operations of the shops, drafting-rooms and power-plants to which they had been assigned. Last spring the graduates of the department initiated a movement for the purpose of promoting better acquaintance between the older and younger men, both socially and professionally. It is hoped that this winter will see the organization perfected.

The research work on the use of denatured alcohol in engines, which was conducted by this department in conjunction with the U. S. Department of Agriculture, has been completed and two bulletins have already been issued, one giving a popular summary of the situation to non-technical readers, and the other containing the details of the test. A third bulletin will be issued giving a bibliography of the subject and a review of European progress.

A number of modifications in the courses offered by the department have been made this year, principally along the lines of improving the instruction rather than of altering the subject matter. To this end the design of machinery and structural parts, in accordance with modern drafting-room systems, has been incorporated in the second year drafting work, under the title of Empiric design. The methods used in this course are set forth in a note book written by Professor Walter Rautenstrauch, who, with Mr. E. J. Kunze, will conduct the course. The work differs from machine design in general inasmuch as it is confined to that part of the subject in which no analysis of the stresses involved is ordinarily made, the proportions being determined by standard good practice. The subject of kinematics has this year been entirely transferred to this department, in order to eliminate a duplication which formerly existed between it and the department of civil engineering. The subject is now being taught parallel to the course in empiric design for application in machine-design. The mechanical engineering laboratory work for the department has been materially increased this year by the addition of the third year chemical engineers. The course on steam engines, heat and heat engines has been made somewhat more analytical and less descriptive than before, and the book texts have been materially supplemented by lecture and problem work, together with inspection and sketches of actual machinery by the students. Motors other than steam and dynamics of motors as separate courses have been dropped, their subject matter being incorporated in other courses or omitted entirely.

The research work on the temperature of ignition of gaseous mixtures conducted in the mechanical engineering laboratories by Dr. Falk of the department of physical chemistry has been brought to a successful conclusion and has resulted in data valuable to physical chemists and to manufacturers of gas-engines alike, as it throws much light on the perplexing problem of pre-ignitions of mixtures containing hydrogen in engine cylinders.

DEPARTMENT OF METALLURGY

There may have been a belief that the course of study leading to the degree of metallurgical engineer was not as liberal as that of the other courses offered by the schools of mines and engineering. As a matter of fact, however, the course is now just as liberal in its scope as any in applied science, and should appeal to students interested in metallurgy who desire at the same time a broad education to prepare them for any branch of engineering work or for a business career. Except for one subject, the metallurgical course of study is now identical with that of mining engineering for the first two years, with the double object of avoiding conflicts in the schedule of attendance and of permitting students to study for two years before having to decide whether they will specialize in mining or in metallurgy.

The advanced courses in metallurgy, required of students in metallurgical engineering, have been further developed during the past year. These courses are not reviews of the principles of metallurgy discussed in the elementary courses, but go more fully into the details of processes and apparatus and of the important recent developments in metallurgy, both scientific and technical.

In the summer of 1907, students in metallurgy visited the following plants for their summer school of practical metallurgy (metallurgy 62–64): The Perth Amboy, the Murray, the Garfield, the Eilers, the Pueblo, the Globe, and the Omaha plants of the American Smelting & Refining Company; the Balbach & Nichols plants; the Chrome Copper Refinery; the Palmerton plant of the New Jersey Zinc Company; the Standard, the Portland and the Golden Cycle Mills near Colorado Springs; the Selby Smelting and Lead Co.; the National Refinery at Chicago; the Colorado Fuel and Iron Company; the Illinois Steel Company, and nearly twenty of the most important steel plants in the Pittsburgh district and in cities between Pittsburgh and New York. Other students spent at least a part of the vacation employed at metallurgical works, and the department encourages, as much as possible, this latter method of fulfilling the summer school requirements.

Department of Mining

During the past summer the field work in practical mining was conducted substantially as in 1905 and 1906. Twenty-six students were engaged in this work, most of them without the attendance of instructors, for periods ranging from two to nearly three months. Careful arrangements at the different mines visited were made in advance, insuring that the necessary privileges would be accorded by the mine managements for carrying on the course of study, and each student was provided with printed instructions, covering fully the required work. The mines selected were in the Michigan iron and copper districts, in Butte, Montana, Cripple Creek, Leadville and Aspen, Colorado, the Trail district of British Columbia, and the copper district of southeastern Arizona. Excellent opportunities were also afforded to study the mills and smelters. Two members of the class secured positions at mines in Michigan and Cobalt, Ontario, where they worked during the entire summer. The students were kindly received everywhere, and, as evidenced by the note-books and sketches brought back for criticism by the department, the greater part of the summer work was done in an efficient manner.

Department of Neurology

Professor Peterson spent the past year, on leave of absence, among the hospitals and clinics of Europe. In Germany he visited numerous psychopathic hospitals, especially the newest one at Breslau, under Professor Bonhoeffer. At Munich he studied three months in the psychiatric clinic under Professor Kraepelin and Dr. Alzheimer. At Zurich two months were spent with Professor Bleuler and Dr. Jung. A very important research was there performed with Dr. Jung, on the galvanometer in psychology, the results of which showed that the galvanometer can be used as a very delicate measurer of emotional tone. An account of this research was published in *Brain* in July. Professor Peterson visited asylums and psychiatrists in Italy and Austria, worked in Paris for three months, and in London for two months. In August he addressed the medico-psychological section of the British Medical Association, taking as his subject the application of the galvanometer to the study of emotions in morbid psychology. Professor Peterson believes that the student of neurology and psychiatry going abroad to study, would find his best opportunities in Paris and Zurich, where the material, especially at Paris, is all sufficient, and where the men who do the teaching are the present leaders in these departments. He thinks that the American student makes a mistake in neglecting the immeasurable opportunities of Paris in all departments of medicine.

Department of Physical Education

Extensive improvements were made to the swimming pool during the summer, increased lighting and a new bottom of opaque glass greatly adding to the attractiveness of the water. The demand for lockers is so large this year, that it will probably be necessary to make provision for a considerable number of new ones in the near future. The weekly schedule of gymnasium classes includes six classes for sophomores, eight classes for freshmen, six classes for upperclassmen, law and graduate students, three classes for students who need individual instruction because of physical disability, and three classes for officers. The staff of instructors is the same as last year.

Department of Physics

Harold W. Webb, Barnard fellow for the year 1907–08, is pursuing research work in the field of electric waves in the physical laboratories of the University. The special problem in which Mr. Webb is interested is that of qualitative electric wave receivers, with particular reference to their sensitiveness and adaptability to short wave measurements. At present he is developing the "radiometer" receiver and is endeavoring to push its sensitiveness to the limit.—Dr. George B. Pegram, Tyndall fellow for 1907–08, is at present in Berlin, devoting his time to the study of theoretical physics and to an elaboration of the results of experiments conducted at Columbia. Dr. Pegram expects to spend the spring term at Cambridge University, England, under Professors Thomson and Larmor.

DEPARTMENT OF PHYSIOLOGY

For several years the desirability of offering instruction in pathological physiology to physicians, has been increasingly felt. During the past two summer sessions Dr. Emerson has successfully conducted courses in this subject. He now offers, for the present winter session, a similar course, entitled " The pathology of function." Twenty weekly exercises will be given. The alterations of organic function in disease will be presented, and the accepted methods of studying them by the aid of apparatus of precision will be demonstrated. The course is offered as a graduate course to physicians.

DEPARTMENT OF ROMANCE LANGUAGES

Two lectures in French were given by Professor E. Rossier of the University of Lausanne in Schermerhorn Hall, as follows: November 21—Les hôtes du Léman au XVIII^e siècle; November 23—La littérature de la Suisse romande et les Alpes. The following lectures were delivered under the auspices of the Hispanic Society of America by James Fitzmaurice-Kelly, Fellow of the British Academy; November 19—The Cid; November 22 and 26—Cervantes; December 3—Lope de Vega; December 6—Calderón; December 10—Modern Spanish novelists.—The weekly French lectures given on Thursday afternoons have been resumed and will be held regularly until March. The following subjects will be discussed during December: December 5—Le royaume des Wisigoths: I. France; December 12—Le royaume des Wisigoths: II. Espagne, by Professor Loiseaux; December 19—L'école française de Rome, by Louis Madelin, Litt.D.—On November 22 Professor Rossier addressed the members and students of the Romance department on the advantages offered to the foreign student by the University of Lausanne.

DEPARTMENT OF SURGERY

The activities of the department in research are well illustrated by the October number of the Annals of Surgery. Eight articles, comprising more than half of the contents of the number, are contributed from the department. The articles are as follows: Tetany parathyreopriva, Dr. Eugene H. Pool; Observations upon a form of exophthalmic goitre occurring in a dog, Dr. Carl Eggers and Dr. J. W. Draper Maury; Experimental studies upon the thoracic œsophagus—a preliminary report, Dr. Nathan W. Green and Dr. J. W. Draper Maury; Studies upon the function of the pylorus and stoma after gastroenterostomy has been performed, Dr. Noel Bleecker Leggett and Dr. J. W. Draper Maury; Is death in high intestinal obstruction due to the absorption of bile? Dr. J. W. Draper Maury; Studies in intestinal exclusion, Dr. Joseph A. Blake and Dr. R. M. Brown; Are the intestines able to propel their contents in an anti-peristaltic direction? Dr. Edwin Beer and Dr. Carl Eggers; Rectal anæsthesia; experimental studies together with a report of its practical employment at Roosevelt Hospital; Dr. Noel Bleecker Leggett.

The Society of Clinical Surgery held in November a very successful meeting in New York, one of its sessions being at the College of Physicians and Surgeons and the Roosevelt Hospital. Communications were presented by Drs. Blake, Brewer, Dade, Emerson, Flint, Green, Hotchkiss, Lee, Leggett, Martin, Maury, and Peck. This Society is national in scope, and its communications are limited to clinical and other demonstrations. Four of its forty members are on the staff of the College of Physicians and Surgeons, Drs. Blake, Brewer, Hotchkiss, and McCosh.

UNIVERSITY LEGISLATION

The Trustees

October meeting:—The vacancy in the Board caused by the death of George G. Wheelock, M.D., was filled by the election of Marcellus Hartley Dodge of the class of 1903.

It was resolved that the Trustees accept the gift of the bronze statue of the Great God Pan, executed by George Gray Barnard, together with the exedra of granite, presented by Mr. Edward Severin Clark, and that the thanks of the Trustees be conveyed to Mr. Clark.

It was resolved that the Trustees express their high appreciation of the gift by His Majesty the German Emperor, of the *de luxe* edition of the works of King Frederick the Great of Prussia, and that the respectful thanks of the Trustees be tendered to His Majesty the Emperor for this generous gift to the library of the University.

It was resolved that the Trustees express their grateful thanks to the Prussian Minister of Spiritual, Educational and Medical Affairs for his gift of books to the library of the University.

It was resolved that the Trustees acecpt with pleasure the portrait of Dr. John G. Curtis, professor of physiology, offered by his friends, colleagues and former pupils, to commemorate the close of his thirty-seventh year of service at the College of Physicians and Surgeons, and that the thanks of the Trustees be tendered to the donors.

It was resolved that the Trustees express their grateful appreciation of the proposal of Mrs. George G. Wheelock and of William H. Wheelock to give to the University the sum of $5,000 in memory of the late Dr. Wheelock, a trustee of the University from 1891 to the date of his death; and that the thanks of the Trustees be tendered to Mrs. George G. Wheelock and William H. Wheelock for their gift.

The thanks of the Trustees were also tendered to Mr. Bernard M. Baruch for his gift of $5,000 for the hydrotherapeutic department in the Vanderbilt Clinic; to the anonymous donor of $1,200 for the department of anatomy; to Moses Taylor Pyne, a graduate of the law school of the class of 1879, for his gift of $1,000 for the law library; to Mrs. Louis K. McClymonds for her gift of $650 for the support of a scholarship in Columbia College, in memory of her late husband; to Rutherfurd Stuyvesant, of the class of 1863, for $500 to be added to the Bruce Fund for the department of astronomy; to the donors of the sum of $50, a contribution to the University for the Transactions of the American Mathematical Society for the year 1907; to the committee on the Boas anniversary volume for the gift of $32.01 toward the research fund of the department of anthropology; to Dr. J. Ackerman Coles, of the class of 1864, for the gift of a bronze bust of the Apollo Belvedere.

The annual report of the treasurer together with the report thereupon of the public accountants, was presented and referred to the committee on finance for consideration and report on such matters as the committee may deem necessary or proper.

The annual report of the Vanderbilt Clinic was presented, showing a total of 48,311 patients and 163,223 visits for the year ending June 30, 1907.

The gift of $5,000 in memory of Dr. George G. Wheelock was made the principal sum of a George G. Wheelock Fund for the benefit of the department of physiology.

It was resolved that there be and hereby is appropriated the sum of $15,000 for the purposes of the excavation and retaining wall upon the site of the new law school building, known as Kent Hall, the same to be paid out of the Beck Fund.

The President reported the election to the University Council by the faculty of law of Professor Francis M. Burdick for three years from July 1, 1907.

The Trustees designated two blind students in the University as fit persons to receive the aid provided for under Chapter 608 of the Laws of 1907 of the State of New York.

The following appointments were made (to date from July 1, 1907): Charles McBurney, M.D., and Robert M. Weir, M.D., emeritus professors of surgery; Charles S. Danielson, bursar of the University; Arthur O. Lovejoy, A.M., lecturer in philosophy; Frederick H. Getman, Ph.D., lecturer in physics, and E. B. Wheeler, B.S., assistant in physics.—Barnard College: Mary K. Simkhovitch, A.B., adjunct professor of social economy; Herbert H. Woodrow, A.B., lecturer in psychology, *vice* F. Lyman Wells, Ph.D., resigned.

The following appointments were confirmed (for the summer session of 1907): William E. Mott, civil engineering; Miss Elvira Wood, geology, *vice* T. C. Brown, resigned; Miss Mary Woods, manual training, *vice* Miss L. H. Weiser, resigned; Henry Blumberg, mathematics, *vice* Joseph Lipke, resigned; William H. Boynton, domestic science; Miss Laura Falls, manual training; R. R. Renshaw, chemistry; Harry L. Parr, mechanical engineering; Miss Welthea A. Wilson, domestic science; John Glanville Gill, Romance languages; and Miss Anna C. Thornton, physical education.

Also the following: Edwin Kirk, A.B., assistant in paleontology; Edgar S. Downs, Ph.D., tutor, and Victor R. Greiff, E.E., assistant in electrical engineering; James S. Macgregor, M.S., Francis S. Foote, Jr., E.M., and Daniel Gorren, C.E., assistants in civil engineering; William C. Krathwohl, A.B., tutor in mathematics; David Day Whitney, A.M., assistant in zoology; Eric Higgins, M.S., assistant in physical chemistry; Charles Applewhite Isaacs, A.B., assistant in mathematics; Wendell T. Bush, Ph.D., lecturer, and William F. Cooley, M.S., B.D., assistant in philosophy; Charles B. Markham, A.M., Reinhard A. Wetzel, B.S., and Willard L. Severinghaus, A.M., assistants, William S. Day, Ph.D., lecturer, and Kaufman George Falk, Ph.D., tutor in physics; Elihu C. Church, C.S., assistant in civil engineering; William Wineberger, M.D., James C. Greenway, M.D., Leo Kassell, M.D., and Matthew Steele, M.S., assistants in biological chemistry; Alfred Hoffman, Ph.D., assistant in organic chemistry, and Stanley F. Bond, E.E., assistant in electrical engineering.—In extension teaching (for the academic year 1907–08): Miss Grace M. Daschbach, assistant in music, and Miss Gertrude V. Schweiger, assistant in fine arts.

Mary K. Simkhovitch, A.B., adjunct professor of social economy, was assigned to a seat in the faculty of Barnard College.

Leave of absence for the academic year 1907–08 was granted to George S. Fullerton, Ph.D., professor of philosophy, and George B. Pegram, Ph.D., instructor in physics (Tyndall fellow).

The resignation of George Freeman Fisher, bursar of the University, was accepted.

November meeting:—The President submitted his annual report, which was accepted and ordered to be printed and distributed.

The President reported the election of Professor Calvin Thomas as delegate to the University Council by the faculty of the College for three years from July 1, 1907.

It was resolved, that in all printing and advertising issued by or in the name of the University under the authority of the Statutes, Chapter 28, the standard orthography shall be that of the Century Dictionary, and that in case the Century Dictionary presents two or more spellings of one and the same word, the spelling first given shall be used.

It was resolved, that permission be granted to the congregation of St. Mary's Church to use St. Paul's Chapel on Sunday mornings for divine service during the pleasure of the Trustees.

The thanks of the Trustees were tendered to the anonymous donor of $600 to be applied to the equipment of the laboratory of pharmacology, received through the dean of the faculty of medicine, and to the anonymous donor of $15,000 to be added to special funds.

Richard C. Maclaurin, M.A., LL.D., was appointed to be professor of mathematical physics for three years and seven months from December 1, 1907. Robert J. Lau, Ph.D., was appointed lecturer in Semitic languages for the academic year 1907–08.

The following appointments were confirmed: Harvey Wiley Corbett, B.S., associate director of atelier; Eugene L. Opie, M.D., demonstrator of pathological anatomy, *vice* George A. Tuttle, M.D., resigned; and Theodore Jacob Abbott, M.D., demonstrator of physiology.

Hermann von W. Schulte, M.D., was promoted from demonstrator of anatomy to be adjunct professor of anatomy.

The following appointments in extension teaching were made for the academic year 1907–1908: George Elmore Clark, manual training, and Welthea A. Wilson, domestic science.

Professors John W. Burgess, Munroe Smith, Frank J. Goodnow and John Bassett Moore were assigned to seats in the faculty of law.

UNIVERSITY COUNCIL

October meeting:—The election of the following delegates to the Council for three years from July 1, 1907, was recorded: Columbia College: Professor Thomas; faculty of medicine: Professor James.

Professor Calvin Thomas was elected secretary of the Council for the academic year 1907–08.

The membership of the committee on higher degrees was enlarged by the addition of the dean of the faculty of fine arts.

The following appointments for 1907–08 to fill vacancies were made: President's University scholarship—Edward Hall Gardner, A.B. Amherst 1905, English. University scholarships—Francis Freeman Adams, B.S. Acadia 1907, chemistry; Ervin Leech Anderson, A.B. West Virginia 1905, Romance philology; Edmund Rutan Lupton, A.B. Yale 1906, economics; Fernandus Payne, B.S. Valparaiso 1901, A.B. Indiana 1905, A.M. 1906, zoology. Curtis University scholarship—Annie Laurie Manley, A.B. 1907, philosophy.

It was resolved, that the report of the special committee recommending the establishment of the title of Associate between the grades of adjunct professor and instructor be adopted, and transmitted to the Trustees with the Council's approval.

The report of the special committee on academic leaves of absence was made a special order for the next stated meeting of the Council.

The report of the second committee on the constitution and powers of the council was made a special order for a special meeting to be called by the chair.

The committee on higher degrees was requested to inquire into and report concerning the system of fixing the fees for the higher degrees and the educational effects of that system.

The appointment of Professor W. T. Brewster as acting dean of Barnard College for the academic year 1907–08 was reported by the President.

FACULTY OF APPLIED SCIENCE

October meeting:—It was resolved, that beginning with the mid-year examinations of January 1908, all mid-year and final examinations of applied science students—other than those in which laboratory tests are imperative—be treated as are the admission examinations; that they be held in the University gymnasium, under the supervision of paid proctors who will enforce one and the same system of supervision and discipline; that the several officers of instruction be required to furnish their question papers to the chief proctor for use at the examination, and that the answer books of the students be sent by the chief proctor to the several officers of instruction for reading and marking.

STUDENT LIFE

An innovation has been introduced by Professor Charles A. Beard, in connection with his course on Politics, in the shape of a **Mock Republican National Convention** for the nomination of a president. It will be held in the gymnasium on November 26, and it is expected that at least five hundred students will take part. Every State will be represented by a delegation and the real convention will be duplicated in every way. Regular party platforms will be instituted, a bulletin will be printed daily, and the convention will be presided over by the Hon. Timothy L. Woodruff. The students are taking great interest in the affair and it promises to be very successful. H. Price, 1909, is chairman of the National Executive Committee, the other members being T. M. Alexander, 1908, A. P. Montgomery, 1908, L. R. Reed, 1908, J. N. Wheeler, 1908, W. L. Wood, 1908, and W. A. Kimbel, 1909. W. L. Wood, 1908, is editor-in-chief of the *Convention Bulletin.*

Kings Crown is showing considerable activity. Over one hundred and fifty men were present at the first meeting, which was devoted to Columbia rowing affairs. A movement is on foot to secure a building for the society on or near the campus, and the University has been petitioned for aid.

Class elections held this year have resulted as follows: 1908—H. Fowler, president; F. H. Rindge, vice-president; K. M. Boorman, secretary; W. D. Murphy, treasurer. 1908 S—C. L. Hall, president; L. M. Jones, vice-president; G. Crawley, secretary; W. R. Marshall, treasurer. 1909—B. Sanders, president; L. Bartow, vice-president; M. N. Chanalis, secretary; C. E. Kayser, treasurer. 1909 S—J. J. Ryan, president; D. G. Miller, vice-president; T. A. Robinson, secretary; G. E. Hutchinson, treasurer. 1910—E. Klepetko, president; T. Kiendl, Jr., vice-president; C. W. Cutler, Jr., secretary; J. B. Brittain, treasurer. 1910 S—F. A. Wardlaw, president; R. K. Murphy, vice-president; F. S. Dellenbaugh, secretary; T. C. Jansen, treasurer. 1911—W. B. Belknap, president; N. A. Paulson, vice-president; H. Van Tine, secretary; A. Renshaw, treasurer. 1911 S—O. M. Vogel, president; A. M. Mendelsohn, vice-president; W. L. Riley, secretary; L. W. Powers, treasurer.

The constitutional board which was elected last spring has just laid before the students a **student constitution,** which provides for an efficient board of student representatives and which looks toward greater cooperation between faculty and students. It has already been ratified in mass meeting and lacks only the approval of the authorities to make it legal.

The class of 1909 is planning to have an even more successful **Junior Week** than that of last year. Two new features, an afternoon concert and an ice carnival at the St. Nicholas Rink, have been suggested in addition to the regular ball, theater party, basketball dance, and receptions. The following committee has been appointed:—J. C. Mackenzie, chairman, C. Carmichael, H. Foote, R. L. Fowler, G. E. Hutchinson, F. L. Ives, C. P. Jordan, C. B. Miller, D. G. Miller, W. B. Mucklow, B. B. Odell, A. Ogden, H. J. Stagg, H. W. Taylor, E. A. Ullman, and B. Willis. "The merry widow" has been selected for the theater party, the date being February 6. The ball will be held at the St. Regis the next night and on the fifth the Yale basketball game and dance will come off in the gymnasium.

December 5, 6, and 7 are the dates selected for the **Sophomore Show.** The committee is as follows: R. W. Stephenson, manager, T. S. Babcock, T. B. Counselman, F. S. Dellenbaugh, T. A. Gannon, C. de Garmendia, T. C. Jansen, W. Langer, L. A. Reed, and W. H. Wheeler. The Show was presented at the Carnegie Lyceum and scored a great hit. Charles Hawtrey's "The private secretary," which contains much clever dialog and humor and is admirably adapted for amateur production, was the play selected, the parts being well filled.

The annual elections of Seniors to the honorary society, **Tau Beta Pi,** have been announced as follows: L. L. Kirtley, E. B. McCartney, O. M. Lewyn, H. F. Davis, F. J. Huntington, E. W. Swartwout, H. A. Thomas, A. Kraus, T. A. Fraher, F. W. Crecelin, and G. Williamson.

Several successful receptions have been given under the auspices of the **Christian Association.** The first, that to the freshmen, was held on October 3. More than two hundred men were present and were addressed by Dean Van Amringe and Dean Goetze. On October 17, the graduate students were received, speeches being delivered by Professor J. W. Jenks of Cornell, Dean Hallock, and Professor Beard. Four days later came the reception to the law school men. Dr. Leonhard, Kaiser Wilhelm professor, was present and spoke on the study of law in Germany, comparing it with that in America. Dean Kirchwey and Professor Abbott also gave short addresses. All three receptions were exceedingly well attended and were eminently successful.

A very interesting series of lectures and addresses has been arranged by the **Churchmen's Association** for its monthly meetings. Canon Chase of Christ Church, Brooklyn, Dr. Cole (Ph.D., 1898) of Trinity School, and Dr. Van Allen of Boston have already addressed the society, and the meetings have been very successful. The program for the rest of the year includes addresses by six bishops, as well as many other prominent churchmen.

In an attempt to make **Earl Hall** more popular as a meeting place for the general student body, two pool tables have been installed for the use of members of the Christian Association, and a room has been set aside for the exclusive use of Kings Crown.

More interest is being shown in the **Chapel services** than was the case last year. Musical services are held every Wednesday, and on two other days addresses are made by either the Chaplain, some officer of the University, or a prominent churchman from outside.

Several sessions of the **Intercollegiate Missionary Conference** were held in the Barnard Theater and Earl Hall on November 16 and 17. A number of prominent churchmen, including the Rev. Samuel Zwemer of Arabia, addressed the meetings.

Two **University teas** have been held thus far this year, being attended by large numbers of the faculty and students. Dr. Rudolf Leonhard, the Kaiser Wilhelm professor, was the guest of honor at the first tea, which proved to be a very successful affair.

The **law school** men held a successful **smoker** on the evening of November 15. They were addressed by Judge Whitman, Magistrate Corrigan, Professor Leonhard, Dean Kirchwey, and Dr. Canfield.

Several members of the **Deutscher Verein** represented that organization in the Franz Sigel parade on October 19. The *Verein* is showing its customary activity, having already held several enjoyable meetings. A successful *Kommers* in honor of Professor Leonhard was given on December 2. Speeches were delivered by President Butler, Dean Burgess, Professor W. H. Carpenter, Professor Leonhard, Professor Clemen of Bonn, and others.

The **Latin Society** has changed its name from the *Circulus Latinus* to the *Anthon Club,* in memory of the services to Columbia of Professor Charles Anthon, formerly of the department of Latin and Greek. The society contemplates giving a Latin play later in the year. Officers have been elected as follows: president, A. J. Kilmer, 1908; vice-president, L. C. Lewis, 1908; secretary, J. W. Melville, 1909; and treasurer, P. W. H. Windels, 1908.

On November 3 the **Japanese students** of the University, of whom an unusually large number are enrolled this year, held a celebration in Carnegie Lyceum in honor of the Mikado's birthday. Other Japanese in the city aided in the affair, which was most successful.

Members of the faculty and student body interested in philosophy have recently formed a **Philosophic Club.** Meetings, with discussions on allied subjects, are held frequently.

Officers of the **Chemical Society** for this year are: honorary president, Professor C. F. Chandler; honorary vice-president, Professor C. E. Pellew; president, E. C. Kendal, 1908 S, vice-president, P. Barint, 1909 S; secretary, D. Whipple, 1908 S; and treasurer, C. G. Amend, 1908 S.

The following officers of the **Architectural Society** have been elected for the coming year: president, A. Zink, 1909; vice-president, J. C. Trott, 1909; secretary, J. W. Schmidt, 1909; treasurer W. M. Halley, 1910.

A change has been made in the leadership of the **Debating Team.** The captain who was elected last spring, according to the usual practice, has resigned, and the Debating Union has decided to vest the leadership in two graduate directors, instead of choosing a new captain. The team will elect its own captain after it has been organized. The directors for this year have not yet been announced.

The *Philolexian Society* has arranged a debate with the Philomathean Society of the University of Pennsylvania to take place in Philadelphia on December 6. This will probably be only the first of a series of annual debates, to correspond with the series between the *Barnard Literary Association* and the Zelosophic Society of the U. of P. The debate between the latter societies has been set for December 13, in Earl Hall.

At the first meeting of the **Civic Club** held on November 15, addresses were made by Mr. Charles M. Jesup, Mr. John Boyle, Jr., and Mr. A. H. Spencer. The club is planning renewed activity.

Officers of the **Press Club** for 1907–08 are as follows: president, H. E. Chapin, 1910 L; vice-president, F. Ware, 1908; secretary-treasurer, M. M. Roy, 1909.

Two concerts have already been given by the **Glee Club,** one at the Graduates Club and another in Brooklyn, at the Jane Church. Several more are planned, at Lakewood on December 21, and another at Yonkers.

An informal dance will be given by the **Newman Club** on December 17, at Bretton Hall, Broadway and 86th street. Several well attended meetings have already been held.

The old **Peithologian Society** has been revived this year, and considerable activity is being shown. Literary discussions are held every week and several members of the faculty, including President Butler, have been elected to membership.

The **1909 Columbian** is expected to make its appearance on the campus on December 21. The managing editor and assistant are C. E. Kayser and V. K. W. Koo.

J. W. Melville

ATHLETICS

A very successful **fall regatta** was held on the Harlem on October 26. For the first time in many years there was no inter-departmental freshman race, as the college men were not strong enough to make up a good boat. Three freshman barges rowed together, finishing in close order and showing good form throughout. The Varsity defeated last year's freshman crew and a graduate eight quite easily, the graduates coming in second. Livingston won over Hartley in the inter-dormitory race.

At a meeting of the **Rowing Club** held October 16, the following officers were elected: president, H. Perrine, 1909 S; vice-president, J. C. Mackenzie, 1909; secretary, F. N. Bangs, 1910; undergraduate representative, F. Ware, 1908; manager, H. W. Moore, 1908; assistant manager, A. D. Alexander, 1909.

P. W. von Saltza, 1908 S, has been elected crew captain to succeed G. M. Mackenzie, 1907, who has left college.

The annual interclass **flag rush** was won this year by the freshmen, after only two and one half minutes of play. This is the first time that the second year men have been defeated in a number of years. In the *tug-of-war* held on South Field, October 10, the freshmen were badly defeated by the class of 1910.

Hartley Hall defeated Livingston in the third race of the **interdormitory relay** series, which was started last year, thus winning the oak tablet which was offered by the Track Association for the winner of two out of three races.

The **cross country** team has been using a course at Williamsbridge this year instead of doing all the work on Riverside Drive. The new course more closely approximates that used for the intercollegiates at Princeton. Handicap road races have been held four times this season, the men taking great interest in the events. B. Sanders, 1909, has been made captain of the cross country team. The dual meet with Princeton on November 20 resulted in a victory for Princeton by the score of 43 to 37. On November 27 a team of nine men was entered in the intercollegiate championships, and finished sixth, Cornell coming in first. The annual interclass race was won by 1909 with 27 points, the seniors coming second with a total of 86. B. Sanders and A. Zink finished first in a dead heat, the time being 24:2⅕ for the four and a half miles on Riverside Drive.

In the place of R. G. Estee, 1908 S, who resigned, A. P. Montgomery, 1908, has been elected **track** manager. A. Zink, 1909 F. A., is captain of the team for this year. In the annual *interclass track meet,* the sophomores won from the freshmen, after a protest in one event, by the close score of 59 to 58.

Only one intercollegiate **tennis** match has been played this year, that with Yale at New Haven on October 26, when the Varsity lost by a score of 4½ points to 1½. The University fall championship tournament was won by G. C. Shafer, 1909 L., the runner-up being A. S. Moses, 1909. The doubles championship goes to G. C. Schafer, 1909 L., and H. E. Colton, 1908 L., who defeated K. M. Boorman, 1908, and P. R. Cole, Phil., in the final match. K. M. Boorman, 1908, has been made tennis manager, *vice* H. P. Banks, 1908, resigned.

Six games with local organizations have already been played by the **soccer** team. Of these, only two have been won and one tied. The others were lost by such close scores, however, that when the strength of the opponents is taken into consideration, the outlook for a good season is very bright. The game with the Crescent A. C., the strongest team near New York, was lost by only one goal. A schedule has been arranged that includes many practice games in addition to the regular intercollegiate series. C. E. Dwyer, 1909, is captain of the team, and the manager is W. D. Murphy, 1908.

Basketball practice started on November 6, with a squad of thirty-five men. The intercollegiate championship series will commence on December 18, when the team will meet Princeton in New York. The complete schedule includes a more extensive western trip than usual and two games with Wesleyan. Harvard has resigned from the league, and will not be played this year. J. J. Ryan, 1909 S., has been made captain, and the manager and assistant manager are C. L. Hall, 1908, and W. A. Kimbel, 1909. Three victories have already been scored: over C. C. N. Y., Fordham, and Company F of Norwalk.

The outlook for a strong **lacrosse** team this year seems very bright. A. E. Turpin, 1909, C. F. Hinck, Jr., 1909, and F. C. Steinmetz, 1909, have been elected captain, manager, and assistant manager, respectively, of the team.

Having lost very few members of last year's Varsity **water polo** team, the prospects for this year are bright. The following schedule has been announced: February 14, Princeton, New York; March 6, Pennsylvania, Philadelphia; March 20, Harvard, New York; March 28, Yale, New York. There will also be a game with the College of the City of New York.

R. P. Marshall, 1908, has been elected manager of the **hockey** team to take the place of H. P. Banks, 1908, who has resigned. The captain for this year is J. C. Mackenzie, 1909. Regular practice is held twice a week at the St. Nicholas Rink and also in the handball courts of the gymnasium. The intercollegiate schedule has not yet been announced.

After two years of agitation on the part of the students, **intramural football** has again been established as a regular sport. The board of student representatives petitioned the University committee on student organizations to allow inter-class and inter-dormitory football, and that body gave over all control of intramural sport to the student board. That body passed, on December 4, a resolution in which football was heartily recommended. Practice has already been started, challenges exchanged, and several games are promised for the near future.

J. W. Melville

THE ALUMNI

Association of the Alumni of Columbia College

The annual meeting of the association and reunion of the alumni was held at Sherry's on the evening of October 28. Mr. Julien T. Davies, '66, who has been so largely interested in the attempt to secure alumni representation on the board of trustees, was unanimously reelected president. The meeting was marked by its occurrence in the middle of the financial panic, but the usual enthusiasm and interest of the members prevailed. The following list of candidates recommended by the nominating committee were duly elected officers of the Association of the Alumni of Columbia College from October, 1907, to October, 1908: president, Julien T. Davies, '66; vice-president, William T. Lawson, '82; treasurer, William C. Cammann, '91; secretary, Ernest Stauffen, Jr., '04; members of the standing committee, to serve three years from October, 1907, J. Howard Van Amringe, '60, Louis D. Ray, '82, William B. Symmes, Jr., '98, and Duncan H. Browne, '05; representatives on Alumni Council, (to serve until October, 1909) Willard V. King, '89, (to serve until October, 1910) Robert C. Cornell, '74.

The usual reports of the standing committee and the treasurer were presented, indicating a satisfactory condition of the association and of its finances. The committee on the Alexander Hamilton statue submitted a report, in which it was stated that the statue of Alexander Hamilton by William Ordway Partridge of the class of 1885 had been purchased and that the five thousand dollars voted by the Association had been paid on account.

Mr. Davies in thanking the members of the Association for his reelection as its president, spoke of the progress of the movement to secure the direct representation of the alumni on the governing board of the University and told how warmly the matter had been received both by the graduates and the University authorities. The Association voted to continue the committee having this matter in charge, of which Mr. Davies is the chairman. An interesting event was the passage of a resolution authorizing the standing committee to make other disposition of the alumni prize of fifty dollars awarded annually "to the most faithful and deserving student of the senior class" at graduation. The difficulties of awarding this prize under the present regulations were set forth in a communication from President Butler, who suggested that the end of the sophomore year would be a far more suitable time for its award. The thanks of the Association were formally tendered to William B. Symmes, Jr., '98, who has been its efficient secretary for several years.

The Association of Doctors of Philosophy

The next meeting of the Ph.D. Association will be held on Friday, January 10, 1908. Four brief reports will be made: on dissertations, by Dr. Beard; on Ph.D. literature, by Dr. Spingarn; on the credit given by foreign universities to the Ph.D. degree of Columbia, by Dr. Appleton; and on university instruction in hygienics, by Dr. Soper. A room in East Hall, with pleasant light and outlook, has been assigned to the permanent use of the Association. It will hold the library of dissertations and other literature regarding the Ph.D. degree. It will serve as a meeting place for committees or groups of the Association; and as a study or reading room for scholars and for fellows who are candidates for the degree. Copies of the dissertations of members and other Columbia doctors of philosophy are now being collected by the secretary of the Association for its library.

Barnard College

The Alumnæ Association of Barnard College elected the following officers at its annual meeting: Virginia Gildersleeve, '99, vice-president for two years; Agnes Durant, '05, recording secretary for two years, and Helen Cooley, '05, director-at-large for a term of five years. The Christmas reunion of the alumnæ will take the form of a luncheon, to be held at a local hotel, since the associate alumnæ are too numerous to be accommodated in the college building.

Columbia Night at the Graduates' Club

A large number of Columbia graduates met on the evening of November 13 at the Graduates' Club in East Forty-fourth Street. This club is a somewhat recently formed organization, and includes graduates of a large number of colleges and universities throughout the United States. At the dinner, which opened the evening's festivities, were about fifty Columbia men, among them being several professors of the University. At the subsequent reception speeches were made by Deans Van Amringe and Kirchwey, and also by Professor Charles E. Chandler. The Columbia musical clubs also contributed to the evening's entertainment.

Columbia Men in New York City Politics

There was an advance in the number of college and law-school graduates who were candidates in the recent municipal election in New York City. According to the *Evening Post's* "voter's directory," there were 123 such in 1906, 102 in 1905, 87 in 1904, and 80 in 1903. This year these graduates number 156. These educational statistics are as follows:

City College	21	N. Y. University	3
Columbia	12	Williams	3
Harvard	6	Rutgers	2
St. John's	6	Brown	1
Yale	5	Dartmouth	1
Manhattan	4	Princeton	1
Amherst	3	Miscellaneous	29
Cornell	3	Law School only	53
Hamilton	3		

The most prominent figure among the Columbia men was Willard Bartlett, '69, nominated by both the Republican and Democratic parties for Judge on the Court of Appeals bench. John T. McDonough, a graduate of the law school, class of '69, was a candidate for that office on the Independence League ticket. James W. Gerard, '90, on the Democratic ticket, was elected Justice of the Supreme Court from the first district of New York County. From the same district and as candidate for office in the Court of General Sessions, was Edward Swann, a graduate of the law school in the class of '85. James A. Donnegan, '84 L., was nominated for office in the City Court by the Republican party and the Independence League. Other Columbia graduates who were candidates are: For judge, City Court, Thomas F. Donnelly, '84 L.; Frank D. Sturges, '70, '72 L.; William C. Wilson, '69 L.; John G. Saxe, 1900 L.; Frederick Spiegelberg, '87 L.; for assemblymen—William C. Bennett, '93 L.; Alexander Brough, '89 L.; Edgar D. Pitske, '04, '05 L.; Robert S. Conklin, '02 L.; Beverley R. Robinson, '01 L.; W. Holden Weeks, '89 S.; Walter H. Liebman, '94, '97 L.; for aldermen—Tristram B. Johnson, '03 L.; Clarence B. Freeman, '97 L.; in the Borough of Brooklyn, for County Judge, Norman S. Dike, '87 L.; for judge, Municipal Court, William S. Shanahan, '97; Andrew C. Troy, '06 L.; in Westchester county, for County Judge, J. Addison Young, '90 L.; for district attorney, Francis A. Winslow, '89 L.

Columbia Men as Dramatists

Although the professor of dramatic literature does not try to teach his students how to write a play, he does show them how good plays have been written by the greater playwrights. Perhaps it is partly in consequence of this instruction that an unusual number of former Columbia students are now engaged in writing plays. Mr. Thomas W. Broadhurst (post-graduate) has written "The Holy City" and he has adapted "Anna Karénina" for Miss Virginia Harned. Mr. William C. De Mille, 1900, son of H. C. De Mille, '75, a well-known dramatist of years gone by, is the author of "Strongheart," a Columbia play, and of "Classmates," both acted by Mr. Robert Edeson, and of "The Genius," acted by Mr. N. C. Goodwin. Mr. Clayton M. Hamilton (post-graduate) was part-author of "The love that blinds," acted by Miss Mary Shaw. Mr. George Middleton, 1902, dramatized "The cavalier" for Miss Marlowe and "The house of a thousand candles" for Mr. E. M. Holland; and his original play, "A wife's stratagem," was acted by Miss Margaret

Anglin. Mr. Louis Evan Shipman (special student) has written "D'Arcy of the guards" and "On parole," and has dramatized "The Crossing." Mr. Samuel Schiffman, 1906, is the author of "The spell," recently acted by Mr. David Kessler. Mr. Leonidas Westervelt, 1903, has collaborated in writing "The fortunes of the king" for Mr. Hackett and "By right of sword" for Mr. Ralph Stuart.

News of the Classes

1869.—Willard Bartlett, LL.D., 1904, received the nomination for judge of the Court of Appeals of the State of New York from both Republican and Democratic parties and was duly elected.

1870.—Seth Low has been elected a vice-president of the National Civil Service Reform League.—Frank D. Sturges was elected a judge of the Municipal Court in Manhattan.

1871.—Oscar S. Straus, U. S. Secretary of Commerce and Labor, has been elected a senator of the Phi Beta Kappa fraternity.

1878 S.—Marcus Benjamin served as a member of the Jury of Award at the Jamestown Tercentennial Exposition.—Bailey Willis of the U. S. Geological Survey was the senior member of the geological expedition sent to China by the Carnegie Institution in 1903–04. The Institution has just published the record of the expedition, which affords an important addition to the knowledge of China.—Walter G. Eliot was recently elected captain in the seventy-first regiment, N. G. N. Y.

Society of the Early Eighties.—A new society, whose name will be the "Early Eighties" has recently been formed at the Columbia University Club. Membership will consist of college alumni in the classes of '80, '81, '82, '83, and '84, and the object of the society will be "the organized support of Columbia University, and particularly Columbia College as the foundation of the university, the encouragement of legitimate sport and student activities, and the continuance of social relations among its members."

A letter stating the aims of the "Early Eighties" has been sent to graduates in these classes by the committee on organization, composed of J. D. Livingston, '80, W. C. Demorest, '81, R. Arrowsmith, '82, G. H. Barnes, '83, J. F. Jenkins, '84, and G. Romaine, '82, secretary.

The letter in part is as follows: "The period of development upon which the University has of late entered is marked particularly by the enlarged participation of the alumni in its affairs and by a corresponding growth of the college spirit. The recent establishment of local alumni associations in all parts of the country has resulted in the growth of individual and class loyalty and enthusiasm for the University. The Society of the 'Early Eighties' is designed to fuse the individual and class interests of five influential classes into one effective body for the good of the University and the greater social enjoyment of its members. These classes represent the highwater mark of the college. They were the last classes to inherit the old traditions, the old instructors and the old training. They have given to the University its president, a considerable portion of its faculty, and their loyal support, exerting as classes and as individuals a distinct influence on the institution. These classes were in particularly close touch during their college days; and it seems fitting that after a quarter century these relations should be perpetuated by a more intimate connection."

1882.—President Nicholas Murray Butler has been elected a senator of the Phi Beta Kappa fraternity. Rev. James Buchanan Nies, A.M. '87, Ph.D. '88, who was rector of Christ Church in Sharon, Conn., is now in Brooklyn, N. Y. His address is Hotel Margaret.

1888.—Charles Sears Baldwin, professor in Yale University, has recently published through Messrs. Longmans, Green and Co. a volume entitled "Essays out of hours." Many of these have been published in the *Atlantic Monthly.*

1890.—James W. Gerard, running on the Democratic ticket, was elected Justice of the Supreme Court from the first district of New York County. Mr. Gerard's candidacy was approved by the Bar Association.

1892.—J. A. Barnard has been

elected first lieutenant in Company K, seventh regiment, N. G. N. Y.

1894.—D. Stuart Iglehart has returned to the United States from Peru, where he has been engaged in business for several years. G. R. Satterlee, M.D. '98, has been appointed assistant surgeon with the rank of captain in the seventh regiment, N. G. N. Y. F. DeWitt Wells was elected to the municipal bench at the recent election in New York City.

1894 **Arch.**—Franklyn B. Ware has been appointed state architect by Governor Hughes, to succeed the late George L. Heins.

1898.—Henry Thomas Randall married Miss Helen Maud Nixon on September 4, 1907.

1899.—The members of the class of '99 opened the present season of 1907–08 by attending the reunion of the Alumni Association at Sherry's on the evening of October 28. Among those present were Hellman, Ernst, Eldert, Cardozo, Josephthal and Deane. Preparations are well under way for the annual Christmas reunion of the class, which will be held in the early part of January, 1908.—Geoffrey Parsons was married to Miss Carle Taylor on September 7, 1907, in the City of New York.—The class has adopted the following resolution on the death of their classmate, John F. McCann, Jr.:

In the death of John Franklin McCann, Jr., on June nineteenth, one thousand nine hundred and seven, the class of Ninety Nine, Columbia College, has lost a classmate whose friendship will ever be cherished. We shall always remember in deep affection the genial disposition and splendid companionship of our loyal and true friend.

In his memory and honor we spread this record of our love upon the minutes of the class, and as a token of our sympathy we forward a copy to his family.

1901.—L. L. Woodruff, A.M. '02, Ph.D. '05, is now instructor in biology at Yale University. He is also lecturer in embryology at the Woods Holl Marine Biological Laboratory.

1902.—The next class dinner is scheduled to take place some time in January. The latest engagement of which news has reached headquarters is that of Robert B. Hincks. Armour Caldwell received the master's degree from Harvard last June and has been appointed assistant professor of English at Tulane University in New Orleans. Sewall has completed a course in our own school of engineering and is now with a firm of civil engineers in this city. Ward has left Scribners and is taking up the study of library work. Both A. G. Hays and T. R. St. John are members of the new firm of Hays, Kaufmann and Lindheim. Collier has completed his course of hospital work at Roosevelt Hospital, New York City. Charles C. Spicer was married to Miss Georgia Hall Pratt on September 9, in New York City. George Middleton's dramatization of "The house of a thousand candles" has met with pronounced success on the road. Statistics at the Columbia University Club show that the classes of 1902 and 1903 are more largely represented there than any others, these two having an exactly equal number of members in the Club at the last report.

1903.—C. Leroy Hendrickson, A.M. '05, has become a member of the Stock Exchange firm of Hendrickson, Hall & Co. and is the board member. Robert L. Schuyler, A.M., 1904, was married to Miss Sadie Keller Brooks on October 19 at Christ Church, Bronxville, N. Y. C. A. Toussaint has been appointed tutor in mathematics in the College of the City of New York. From 1904 to 1907 he was assistant in mathematics at Columbia.

1903 **L.**—Tristram B. Johnson was elected alderman from the 26th district of Manhattan, running on the republican ticket.

1903 **Barnard.**—Ellice Heaton Fitch was married on October 30 to Mr. Julian Craven Hall, Jr., at Jeffersonville, Indiana. Mrs. Hall's home will be in Louisville, Kentucky.

1904.—Ernest Stauffen, Jr., was married to Miss Mary Brent Stewart, daughter of Mr. and Mrs. Louis Stewart, on the afternoon of November 20, at the Church of the Ascension, New York City. He was elected secretary of the Association of the Alumni of Columbia College at the annual meeting.

1905 **S.**—N. G. Anderson, E.M., is engineer for the La France Copper Co. and Davis Daly Co., Butte, Mont. —D. R. Bacon, E.E., is with the Brooklyn Edison Co.—W. L. Benham, C.E., is a member of the firm of Benham and Adams, civil engineers, Oklahoma City, Oklahoma.—E. S. Berry, E.M., is consulting engineer to M. Guggenheim's Sons.—A. Bleyer, E.E., is an engineer with Oberg and Blumberg, contracting electrical engineers.—W. A. Bode, C.E., is a draftsman with the Consolidated Gas Co. of New York.—W. E. F. Bradley, E.E., is an engineer with Peter Cooper Hewitt.—T. R. Buell, E.M., is a superintendent in the Gold Mt. District, Nevada.—L. T. Churchill, C.E., is foreman for H. C. Van Einburgh, C.E., Plainfield, N. J.—F. W. Collins, E.M., is associated with H. P. Gillette, New York City.—F. S. Cook, E.M., is consulting engineer at Joplin, Mo.—M. L. Cornell, C.E., is manager for the J. B. & J. M. Cornell Company, New York.—P. W. Donovan, E.M., is superintendent of exploration, for E. J. Longyear, Hibbing, Minn.—M. I. Goldman, E.M., is assistant geologist with the American Smelters Securities Co. —C. T. Griswold, E.M., is mine superintendent for the Canadian Copper Co., at Crean Hill, Ontario.—H. C. Haas, E.E., is an inspector in the operating department of the Electric Storage Battery Company, New York. —A. W. Hahn, Chem., is chemist for O. Y. T. Braniff at Maconi Cadereyta, Querétaro, Mexico.—F. W. Hollman, M.E., is steam engineer for the Maryland Steel Co. at Sparrows Point, Md.—G. H. Hooper, Jr., E.E., is with the Edison Storage Battery Co., West Orange, N. J.—F. L. Humphrey, C.E., is engineering aid, U. S. Reclamation Survey, in the Rio Grande project, Selden, N. Mex.—F. L. Kohler, E.E., is inspector in the electrical department, N. Y. C. & H. R. R. R.—H. S. Loveman, M.E., is with Henry R. Worthington, hydraulic works.—R. J. Lucas, C.E., is topographical draftsman, Borough of the Bronx, N. Y. C. —A. S. Malcomson, C.E., is in the Engineering Corps R. R. Commission at Washington.—C. E. Matthews, C.E., is assistant engineer on the Belmont Tunnel.—A. J. Mettler, Chem., is chemist for The Fibre Conduit Co. at Orangeburg, N. Y.—M. I. Nusim, M.E., is in charge of turbine research calculations for the General Electric Co., Lynn, Mass.—A. E. Ring, E.M., is surveyor and draftsman with Harper Macdonald & Co., Butte, Mont. —R. A. De Sallier, E.M., is chief assistant to R. M. Atwater, Jr., Helena, Mont.—H. L. Silverman, E.M., is a mining engineer with the Montana Consolidated Copper Co.—E. C. Stevens, E.M., is assistant city engineer of Billings, Mont.—R. M. Strong, M.E., is with the U. S. Geol. Survey fuel testing plant, St. Louis, Mo.—M. G. Talcott, E.M., is a mining engineer at Clifton, Morenci Dist., Arizona.—B. R. Von Sholly, A.M., is gas engineer to the Power & Mining Machinery Co., Milwaukee, Wis.—G. B. Werner, E.E., is electrical engineer for the C. L. de Muralt and R'way Electric Power Co., New York.—B. L. Wheeler, E.M., is a mining engineer at Rhyolite, Nevada. —A. I. M. Winetraub, E.E., is chief of the engineering department of Sussdorff, Zaldo & Co., New York.—W. A. Wolff, E.E., is telephone engineer with the Western Electric Co.

1906 **S.**—J. C. Barnaby, M.E., is with the U. S. Geol. Survey fuel testing plant at St. Louis, Mo.—H. Baxter, E. M., is a mining engineer at Goldfield, Nevada.—R. A. Becker, C.E., is assistant engineer of the reservoir department, Ashokan Reservoir, N. Y.—T. J. Brady, Jr., C.E., is vice-president of the Thomas J. Brady Co., New York City.—J. A. Church, Jr., E.M., is with the Guanajuato Development Co., Mexico.—J. D. Cosgrove, C.E., is engineer with Hudson Co.'s, N. Y.—M. Deutsch, C.E., is an assistant engineer with The Foundation Co., N. Y.—J. B. Doughty, C.E., is assistant inspector of the bridge department, L. I. R. R. Co., New York. —F. D. Druding, E.M., is with the Utah Copper Co., Bingham, Utah.—W. C. Dunlop, M.E., is erecting engineer with the Allis-Chalmers Co., New York.—D. H. Dunn, E.M., is chief engineer of the Sonora Central R'way, Mexico.—F. T. Eddingfield, E.M., is superintendent of the Emery Mine, Deerlodge, Mont.—H. C. Enos, E.M., is manager of the Tehuantepec Silver Mines Co., San Geronimo, Mexico.—J. K. Finch, C.E., is instructor in railroad engineering and surveying at Lafayette College, Easton, Pa. —L. B. Forst, B. S. (Chem.), is assistant chemist U. S. Internal Revenue, Treasury Department.—M. W. Franklin, E.M., is engineer with the United Reed Mines Co.—F. W. Gay, E.E., is with the Crocker-Wheeler Co., Ampere, N. J.—H. H. Goodwin, C.E., is assistant engineer with the N. Y. Board of Water Supply.—C. M. Haight, E.M., is mining engineer for the Adventure Consolidated Copper Co. & the Michigan Copper Mining Co., Rockland, Mich.—L. P. Hosford, C.E., is secretary of Spalding, Hosford Co., Inc., New York.—A. M. Johnson, E.M., is with the N. J. Zinc Co. at Franklin Furnace, N. J.—R. M. Johnson, E.M., is assistant engineer with the Spanish American Iron Co., Cuba. —H. Kaplan, M.E., is assistant engineer U. S. Geological Survey testing laboratories at St. Louis, Mo.—C. A. King, M.E., is with H. C. Meyer, Jr., consulting mechanical engineer, New York.—L. M. Kniffen, E.M., is cyanide superintendent of the Dolores Mines Co., Mexico.—A. Lazinsk, C.E., is a bridge draftsman with the Erie Railroad, New York.—H. G. McClain, E.M., is mining engineer and surveyor with the Liberty Bell Gold Mining Co., at Telluride, Colo.—F. W. McKinney, C.E., is railroad engineer and purchasing agent for the La Dicha & Pacific R. R. Co.—A. P. Palmer, E.E., is with the Metropolitan Street Railway Co.—R. J. Pigott, M.E., is with the Interborough R. T. Co., New York.—C. Pocock, E.M., is mining engineer for the Santa Fé Gold & Copper Min. Co., San Pedro, N. Mex.—S. N. Polishook, C.E., is architect's engineer for J. B. Snook's Sons, New York.—J. P. Read, E.E., is superintendent of construction for W. S. Barstow & Co., New York.—B. F. Roden, Jr., E.M., is general manager of the Central Coal Co., Birmingham, Ala.—R. S. Schultz, E.M., is engineer for the Victoria Copper Mining Co., Mich.—W. Schwarzkopf, E.E., is construction engineer for the Westinghouse Electric & Manufacturing Co.—F. H. Seifert is with the Tennessee Copper Co.—H. A. Seil, Chem., is chemist for the G. F. Harvey Co., Saratoga Springs, N. Y.—J. E. Sinclair, Chem., is lecturer in chemistry, Columbia University.—J. B. Spencer, M.E., is assistant engineer for the James Reilly Repair & Supply Co., New York.—C. S. Thomas, Jr., E.M., is general manager and chief engineer for Marvin Ish & Brother, Goldfield, Nev.—A. M. Tweedy, E.M., is superintendent of the American Pyrites Co., at Gouverneur, N. Y.—A. B. Young, E.M., is on the metallurgical staff of the Canadian Copper Co., Copper Cliff, Ontario.

1906.—A stone has recently been erected by the class, commemorating the planting of the class ivy on class-day, June 11, 1906. The executive committee have decided on February 20, 1908, as the date for the annual class dinner.—F. D. Fackenthal and C. A. Stewart are still connected with the University, the former as chief clerk in the secretary's office and the latter as assistant in geology. Percy G. Tripp is teaching in a government school in China. George L. Ashforth was married on October 15 to Alice Byrd Cook. Alexander S. Boyd of Rossville, N. Y., died on May 17, 1907.

1907.—Fifty-five members of the class are still registered in the various departments of the University. They are distributed as follows: *1908 Law,* Bondy and Maves; *1909 Law,* Bailly, Bangser, Blechman, Doernberg, Dox, Gordon, B. Levy, D. H. T. Miller, Richter, Schwarz, Spitz, Tachna, Wicke and Wormser; *1910 Law,* Chapin, Hopping, Jabine, Kelley, A. S. Levy, Jr., Harris, Parks and Peiser; *P. & S.,* Baehr, Bell, Blum, Combes, Henes, McKinlay, Martland, Walther; *Mines, Engineering and Chemistry,* Alexander, Carpenter, Comstock, Egbert, H. S. Kohlberg, Lukens, Mapes, C. Marcus, Perrine, Reaney, Spencer, Vehslage; *T. C.* Cohen, Randolph; *Post-Graduates,* Brandau, Fuchs, Minkin and Solomon. Also registered are Conried, Cowen, Demarest, Swords and Wuppermann.

Lewis French Stearns Hawes, who was to have entered the Massachusetts Institute of Technology this year, died of typhoid fever at New Rochelle, Sept. 2, 1907.—Dudley Hunt Walbridge was married on Wednesday, October 30, 1907, to Miss Marguerite Newcomb Taylor, daughter of the Rev. and Mrs. Homer Francis Taylor. The ceremony was performed at St. Paul's Church, Washington Avenue and 170th St. by the Bishop of New York, the Rt. Rev. Henry C. Potter, and the Rev. Dr. Henry Mottet. Horace T. Aplington was the best man and George Ashforth, '06, was one of the ushers. Walbridge is now with the American Coal Company, Broadway. Frank A. Dickey was married on July 6, 1907, to Miss Ida M. Van Midelsworth, of New Brunswick. He is now secretary of the University Committee on Employment for Students. Others who have recently married are William Harris, Jr., and Abraham B. Cohen. Cohen is teaching German at the Boys' High School, Brooklyn, and acting as coach of the basketball team.

Hetherington is studying law at Harvard, while Egan, Masterton and Mitchell are at the New York Law School. Two of our members are connected with the publication of trade-journals. Palmer is associate editor of *The Hardware Review* and Keller is helping his father edit *The National Bottlers' Gazette.*

The officers of the class, as elected at the dinner on commencement day, are: *President,* John Weedman Brodix; *vice-president,* Horace Thurber Aplington; *secretary,* Percy A. Gordon; *treasurer,* Charles Burr Spencer. Chapin, Gordon, Norris, Peiser, Spencer and Vehslage have been appointed a committee to draft the permanent constitution of the class. It is expected that the proposed constitution will be ready for presentation at the first reunion smoker, which it is planned to hold early in December. Chapin, Kelley, Parks, Reaney and Spencer have been appointed a committee to make arrangements for the same. Due notice will be sent to all members of the class. Until further notice, the address of the secretary, Percy A. Gordon, will be Hartley Hall, Columbia University. He desires all members to keep him informed as to changes of address, and will be glad to receive any items of interest to the members of the class.

1907 **S.**—W. W. Wise is with the Westinghouse Co., of Brooklyn, N. Y. —C. F. Dickson is practicing civil engineering in Cincinnati, O.—B. F. Tillson is with the New Jersey Zinc Company.

Ph.D. Notes

1899.—Edwin Grant Dexter has been appointed commissioner of education for Porto Rico.—Houghton, Mifflin & Co. have just published for Frank W. Chandler "The literature of roguery" in two volumes.—The honorary degree of doctor of divinity has been conferred on the Rev. William I. Chamberlain by Hope College.

1902.—Professor Richard T. Holbrook, of Bryn Mawr, has discovered in Italy two unedited letters of Byron, one of them containing a mention of Allegra. He intends to publish them soon.—Allen Hubbell, who was dean and vice-president of Berea College, Berea, Ky., now occupies the chair of economics and sociology at Kentucky University, Lexington, Ky.

1903.—Walter E. Clark has been appointed associate professor and head of the recently created department of political science in the College of the City of New York.

1903.—Philip B. Hawk has been elected professor of physiological chemistry in the University of Illinois. —Guy Stanton Ford, professor of history in the University of Illinois, was married to Miss Grace Ellis, daughter of Mrs. Florence L. Ellis, on September 6, at Bristol, Wis.

1904.—Edward Warren Capen, who was assistant to the editorial secretary of the American Board of Foreign Missions, is travelling abroad, engaged in a two-years' study and observation of missions, with reference to education work. He spent the fall in South Africa. Percy L. Hughes has been appointed assistant professor of philosophy and psychology in Lehigh University. He has published "Types of religious attitude" in the *Journal of Religious Psychology and Education,* vol. 2, numbers 2 and 3, pp. 272 ff., 1907, and "Concrete conceptual synthesis" in the *Journal of Philosophy, Psychology and Scientific Method,* Nov. 7, 1907.—Edwin Smith Todd, formerly of the department of history, Springfield, Ohio, High School, is assistant professor of economics and sociology at Miami University, Oxford, Ohio.—Walter Lynwood Fleming, formerly professor of history at West Virginia University, Morgantown, W. Va., is now professor of history at Louisiana State University, Baton, Rouge, La. He has recently published a "Documentary history of reconstruction," which has received favorable notices from critics. He is now engaged in writing a life of Jefferson Davis.—Hervey W. Shimer, of the Massachusetts Institute of Technology, was a member of the teaching staff of the Yale University summer school of 1907.

1905.—Dr. Naohidé Yatsu was recently appointed lecturer at the Tokio University, Japan, and will give a course on experimental zoology.—Henry Suzzallo, formerly assistant professor of education at Leland Stanford, Jr., University, is now adjunct professor of elementary education at Teachers College. During the summer of 1907 he was assistant professor of education in the summer session of the University of California at Berkeley. He was deputy superintendent of schools of San Francisco in the reconstruction of the city school system.—Junius L. Meriam, professor of the theory and practice of teaching in the University of Missouri, is now dean of the Teachers College of that institution. He has been appointed director of the university's summer session.—Fletcher Harper Swift has been appointed assistant professor of education in the University of Minnesota.

1906.—H. L. Coleman has been appointed professor of education in Toronto University.—Fred James Pack, formerly professor of geology at the Brigham Young College, Utah, is now Deseret professor of geology at the University of Utah, Salt Lake City, Utah.—Frederick Lyman Wells, who recently occupied a fellowship at Columbia University, is now assistant in pathological psychology at the McLean Hospital, Waverley, Mass.—John Lewis Gilpin, president of Ashland College, Ashland, Ohio, is now on leave of absence and will leave for Germany for study and rest.—Holland Thompson is assistant professor of history in the College of the City of New York. By special detail he is director of the Twenty-third Street building and *ex officio* a member of the executive council of the college.

1907.—William B. Guthrie has been promoted from tutor to instructor in history in the College of the City of New York.—Norris A. Brisco and Guy E. Snider, also of the department of history at the City College, have likewise been promoted from the grade of tutor to that of instructor.—Louis J. Cohen has been appointed tutor in chemistry in the same institution.

Alumni Council

The Alumni Council at its annual meeting held on November 7, 1907, adopted the following resolution, in regard to alumni representation:

Resolved, that the appointment by the Trustees of Columbia College in the City of New York of a special committee "to consider and report on a plan for giving to the Associated Alumni of Columbia a direct and responsible representation in the Board of Trustees" is heartily welcomed by the Alumni Council of Columbia University as evidencing a disposition on the part of the Board to satisfy the long felt and repeatedly expressed desire of the alumni to have a voice and a part in the administration of the University; and further, that the Council express to the Board of Trustees its readiness to cooperate with the Trustees and to do any and all such things which may seem wise and proper in an effort to bring about the establishment of a system of alumni representation.

NECROLOGY

Blagden, Rev. Silliman, LL.B. 1871, A. B. Yale 1869, died suddenly at his home in Boston, Mass., on November 25, 1907, aged sixty-two years. He was a retired Congregational minister, and for the past few years had been a contributor to newspapers and magazines. He was a grandson of Dr. Benjamin Silliman, a well-known professor at Yale.

Close, Seth Delbert, M.D. 1876, died at his home in New York City on October 30, 1907, aged fifty-six years.

De Forest, Louis, who was a student in the College in 1903–4, died on November 6, 1907, at his home in New York City.

Eager, William Blake, M.D. 1848, died January 18, 1890. He was a surgeon in the Civil War.

Edebohl, Alphonse J., a member of the class of 1907, Mines, died on September 1, 1907.

Fitzgerald, Frank Thomas, LL.B. 1878, died at his home in New York City on November 25, 1907, aged fifty years. His death resulted from injuries received four years ago in a trolley car accident in Canada. In 1884 he was a candidate for Congress on an independent ticket. In 1888 he became identified with Tammany Hall and was elected to Congress, but never filled the office of representative, having been elected register before his term began. In 1892 he was elected surrogate and remained in that position until his death. He was a member of the Catholic, Democratic, Manhattan, Players, and Press Clubs.

Hawes, Lewis French Stearns, a member of the class of 1907, College, died recently.

Henne, Christopher, 2d, E.M. and A.M. 1900, A.B. Stanford 1897, died on December 12, 1906, at Tucson, Arizona, where he went for his health.

Hoyt, William Allen, LL.B. 1866, died on May 28, 1903, in his fifty-ninth year.

Kunz, George Handforth, a member of the class of 1907, died recently.

Markoe, Francis Hartman, M.D. 1879, A.B. Princeton 1876, died on September 13, 1907, at his home in New York City, aged fifty-two years. From 1880–84 he was assistant demonstrator of anatomy at the College of Physicians and Surgeons, then demonstrator, and from 1900 on was professor of clinical surgery and clinic lecturer. Dr. Markoe was a member of the New York Academy of Medicine, the New York Medical Society, the New York Pathological Society, the New York Surgical Society, the New York Medical and Surgical Society, the Physicians Mutual Aid Society, the Society for the Relief of Widows and Orphans and the American Surgical Association. He was also a member of several clubs.

Munroe, Chester Clark, LL.B. 1871, died on October 4, 1907, in New York City, aged fifty-seven years. Mr. Munroe was a member of the University Club, St. Anthony Club, Larchmont Yacht Club, and the Calumet Club.

Porter, Elbert Staathoff, A.B. 1880, died on April 18, 1906, at Stockbridge, Mass. He was a graduate of the Union Theological Seminary, 1883.

Putman, Alonzo, M.D. 1851, died August 29, 1892.

Rowland, George, C.E. 1887, died in July, 1907. He was assistant treasurer of the Continental Iron Works of New York City.

Sherwood, Charles, LL.B. 1874, A. B. Yale 1872, died at Bridgeport, Conn, in 1904.

Simpson, Charles, M.D. 1871, A. B. Hamline 1869, died recently.

Underwood, Lucien Marcus, Ph.B. Syracuse 1877, Ph.M. 1878, Ph.D. 1879, LL.D. 1906, died on November 16, 1907, at Redding, Conn. See Quarterly, page 67.

Warren, Minton, LL.D. 1900, professor of Latin in Harvard University since 1899, died very suddenly of heart-disease at the home of a friend near Cambridge, Mass., on November 26, 1907, aged fifty-seven years. He was graduated from Tufts College in 1870, studied at the Universities of Leipzig, Bonn and Strassburg from 1876 to 1879, and received the degree of doctor of philosophy at Strassburg in 1879. In that year he was called to the Johns Hopkins University as associate in Latin, and remained there, with the exception of the year 1896–7, when he was director of the American School of Classical Studies in Rome, until his removal to Harvard. The degree of doctor of laws was conferred upon him by Tufts College in 1899 and by the University of Wisconsin in 1902. He was one of the foremost Latinists of this country; from his Latin Seminar at Johns Hopkins, in particular, went forth an unusually large number of young men who have since made their mark as teachers of the classics.

WENTWORTH, Thomas, a member of the law school 1869–70, died on Nov. 11, 1907, at his home in New York City, aged sixty-three years. He was for several years a prominent member of the New York Bar, and acted as a city magistrate under Mayor Strong. He was a member of the Union League and other clubs. He received the degree of A.B. from Yale.

WORCH, Frederick Everly, LL.B. 1886, died on August 2, 1907, at Los Banos, Cal., aged forty-two years.

STATISTICS

The enrollment of the University shows a considerable gain in comparison with the preceding year. The total gain is one of 547, the present enrollment of 5,197 being the high-water mark in Columbia's history. This is exclusive of 3,055 students who have thus far registered in extension courses at and away from the university and in evening technical courses. The total registration of resident students this fall shows a gain of 255 over 1906.

So far as registration by faculties is concerned, Columbia College shows a slight gain, the entering class being smaller, but an unusually large number of students having entered on advanced standing from other institutions. The tuition fees in the college have been raised considerably and this has no doubt affected the registration, not sufficiently, however, to bring about a decrease in the total. Barnard College, the undergraduate department for women, shows a total gain of 22 and a gain of 10 in the entering class. The non-professional graduate faculties of political science, philosophy and pure science have experienced the considerable gain of 130 students, all of the three faculties sharing in the increase. The schools of mines, engineering and chemistry exhibit an encouraging increase over last year, the figures being 585 and 524, respectively, and for the entering class 186 in 1907, as against 137 in 1906. A large number of students has also been admitted to advanced standing in this faculty. Fine arts records the largest enrollment in its history; the registration in the department of music having remained uniform, while there has been a gain of 36 in the department of architecture.

The school of law, which now demands a baccalaureate degree for admission, shows a slight loss, namely, from 261 to 247. The entering class is a little smaller than that of last year, containing 103 students, inclusive of 18 seniors from Columbia College; the latter, however, are not counted in the total for the school. The standards for admission and advancement to the medical school were increased several years ago, and as a result there has been a gradual falling off in numbers, the figures for this year being 298, as against 352 in 1906. Ten Columbia College students are also registered in the school, bringing the actual total to 308. The college of pharmacy shows a decrease from 254 to 229, this loss also being due to the stricter requirements for entrance first enforced in 1905. The entering class, however, is larger than it was last year. Teachers College has increased its enrollment by no less than 165 students, in spite of the fact that its second year class has been abolished, its first year class having been withdrawn last fall. The grand total this year is 891, of whom 223 are candidates for the higher degrees (A.M. and Ph.D.).

The summer session of 1907 was the largest in the history of the institution, 1,350 students having been enrolled on Morningside Heights and 42 at the college of physicians and surgeons, the total number representing an increase of 351 over the summer of 1906. There is also a large gain in the number of students registered in extension courses, and the evening technical courses, first established last winter, have become exceedingly popular. The number of officers has increased from 571 in 1906 to 646 in 1907, this being exclusive of the instructors in the Horace Mann and Speyer schools.

Students registered in:	1899	1900	1901	1902	1903	1904	1905	1906	1907
Columbia College	446	464	481	485	493	527	557	606	609
Freshmen	106	124	141	157	119	145	157	160	133
Sophomores	113	95	102	85	111	113	130	156	168
Juniors	89	99	98	128	112	117	112	128	141
Seniors	93	88	94	70	110	106	113	111	111
Non-matriculated	45	58	46	45	41	46	45	51	56
Barnard College	223	292	328	345	399	363	371	398	420
Freshmen	54	82	99	92	101	110	103	112	122
Sophomores	38	51	73	79	74	75	95	89	92
Juniors	39	39	48	73	81	70	77	109	115
Seniors	39	52	50	49	77	83	81	64	58
Non-matriculated	53	68	58	52	66	25	15	24	33
Total undergraduates	669	756	809	830	892	890	928	1004	1029
Faculty of Political Science	118	109	142	150	143	148	174	177	210
Faculty of Philosophy	108	239	280	317	382	392	490	492	573
Faculty of Pure Science	53	64	54	57	95	160	140	139	155
Barnard College	71	*	*	*	*	*	*	*	*
Auditors	22	20	18	23	17	9	—	—	—
Total non-professional graduate students	372	432	494	547	637	709	804	808	938
Schools of Mines, Engin'g and Chem.	464	546	604	685	719	589	566	524	585
First-year	130	153	193	222	177	156	140	137	186
Second-year	114	132	156	184	226	164	198	158	189
Third-year	111	123	127	149	146	156	112	118	123
Fourth-year	69	99	91	87	104	85	94	87	64
Non-matriculated	37	33	31	38	53	28	22	24	23
Graduates	3	6	6	5	13	†	†	†	†
Fine Arts						109	139	112	147
Architecture	‡	‡	‡	‡	‡	74	107	87	123
Music	‖	‖	‖	‖	‖	35	32	25	24
Law School	377	427	443	468	384	342	277	261	247
First-year	166	172	165	182	104	106	70	92	85
Second-year	111	151	150	135	149	98	107	69	83
Third-year	99	100	126	129	119	127	92	85	59
Non-matriculated	1	4	2	22	12	11	8	15	20
Medical School	757	751	815	777	669	560	424	352	298
First-year	226	245	269	203	107	97	79	86	60
Second-year	159	190	199	205	164	106	83	80	67
Third-year	158	148	179	181	191	156	100	79	76
Fourth-year	173	147	148	171	178	190	152	96	80
Non-matriculated	41	21	20	17	29	11	10	11	15
College of Pharmacy						435	353	254	229
First-year						261	97	107	120
Second-year						157	232	106	90
Graduates						17	24	41	2
Non-matriculated						—	—	—	17
Teachers College	317	448	557	563	624	640	792	726	891
First-year	42	24	17	43	29	29	24	—	—
Second-year	19	30	28	21	46	44	51	43	—
Third-year	80	93	141	155	201	237	308	273	314
Fourth-year	46	76	79	145	174	195	236	239	314
Non-matriculated	38	40	19	54	40	23	32	22	40
Graduates	92	127	162	83	95	99	141	149	223
Auditors and unclassified students	—	58	111	62	39	13	—	—	—
Total professional students	1915	2172	2419	2493	2396	2675	2551	2229	2397
Double registration §	—	105	136	120	189	218	266	155	223
Net total resident students	2956	3255	3586	3750	3736	4056	4017	3886	4141
Summer Session		417	579	643	1001	961	1018	1041	1392
Double registration **		108	86	91	180	184	280	277	336
Grand total regular students	2956	3564	4079	4302	4557	4833	4755	4650	5197
Students in extension courses	750	721	420	535	732	684	964	1017	3055
Officers	412	440	449	473	509	551	573	571	646

In addition to the above there are this year 1012 pupils in the Horace Mann School and 215 in the Speyer School.

* From October, 1900, women graduates registered under the University faculties.

† Graduate students in applied science are now registered under the faculty of pure science.

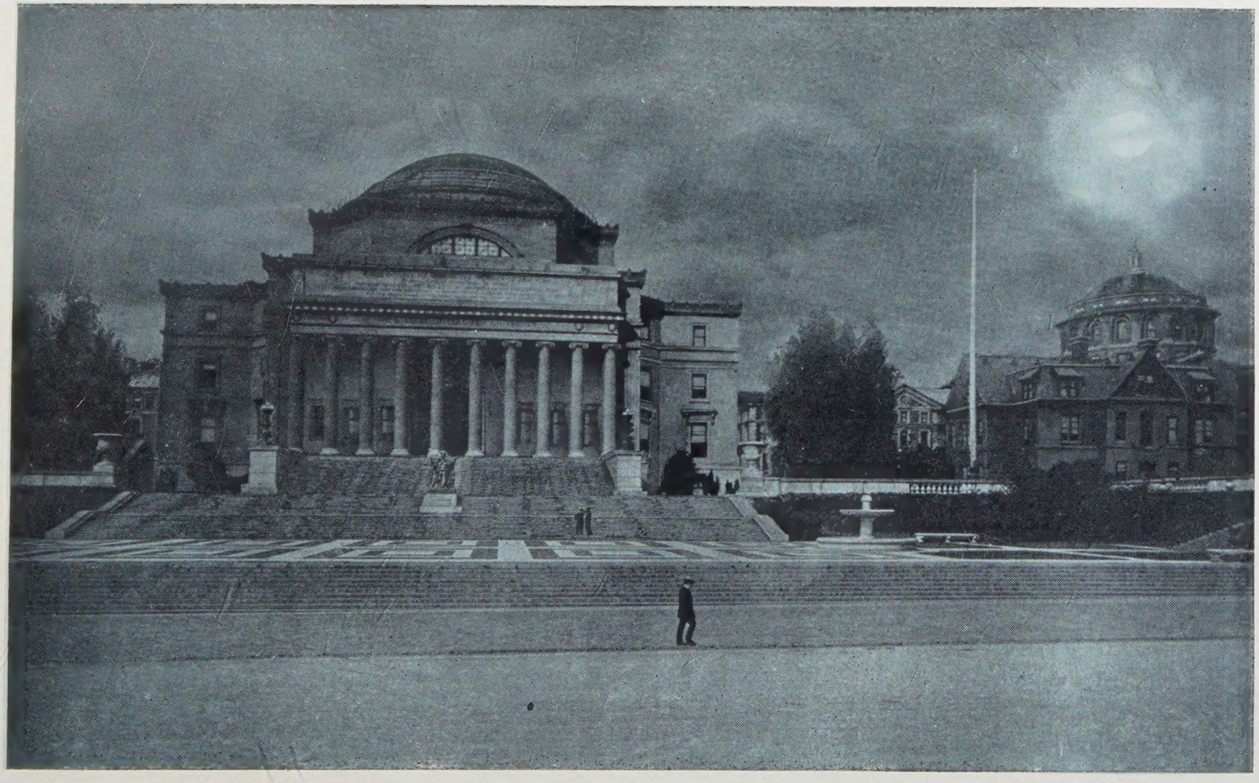
‡ Students in architecture are included under mines, engineering and chemistry previous to 1904.

‖ Students in music are included under Barnard College (non-matriculated) previous to 1904.

§ Includes candidates for University and Teachers College degrees.

** Includes Summer Session students who returned for work in the fall.

R. T., Jr.



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